

FIG. 3

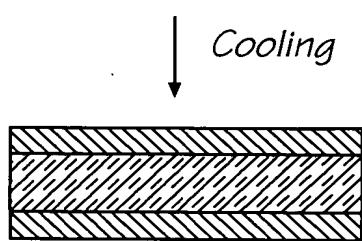
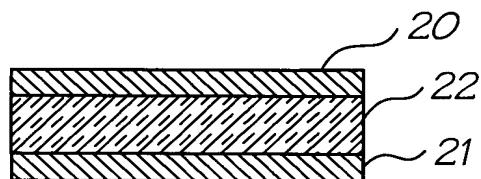


FIG. 4

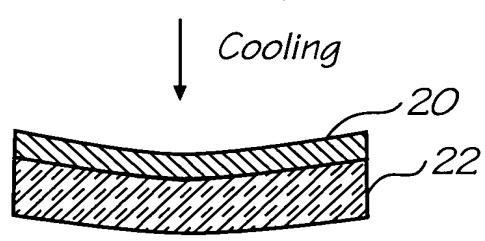
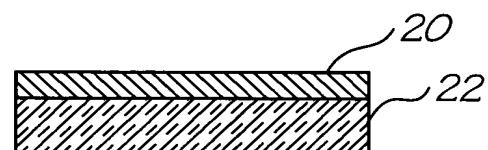


FIG. 5

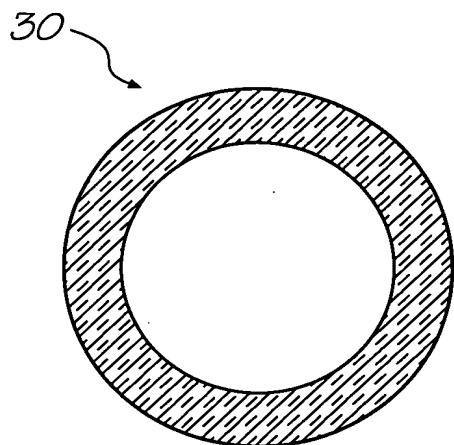


FIG. 6

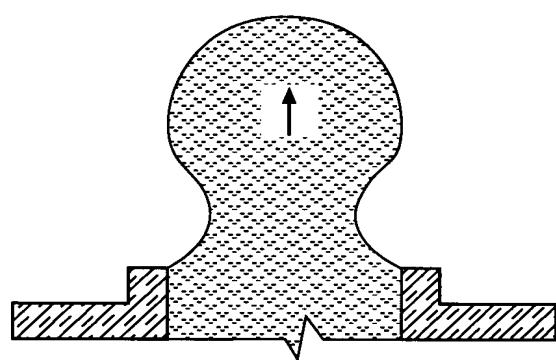


FIG. 7

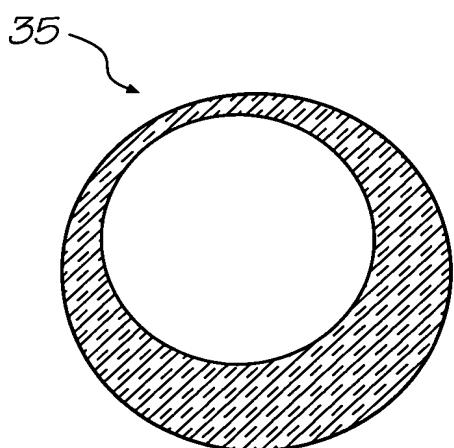


FIG. 8

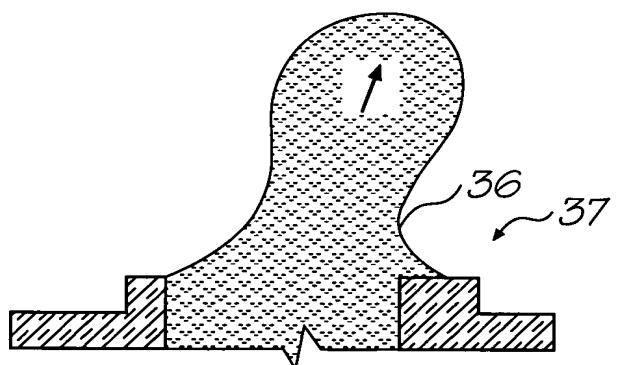


FIG. 9

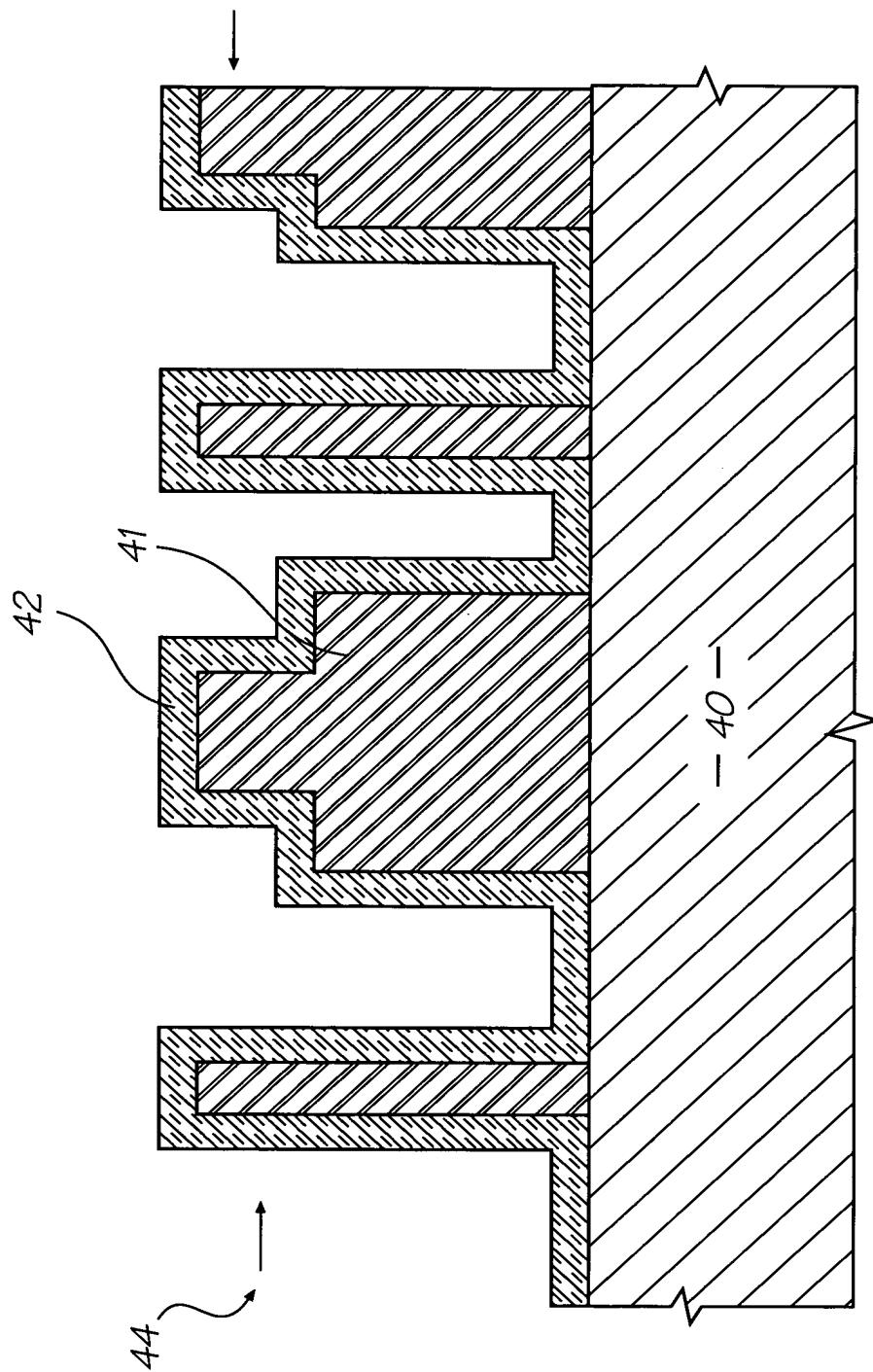


FIG. 10

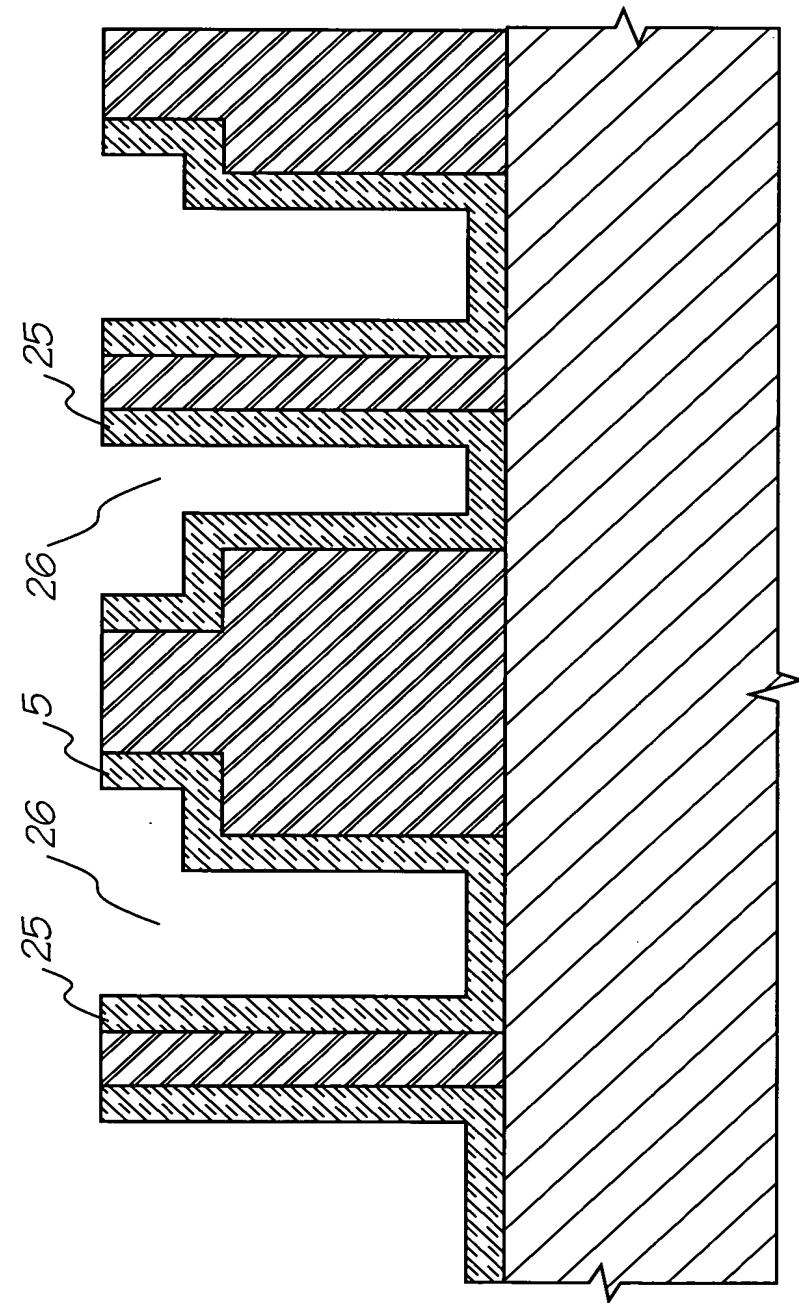


FIG. 11

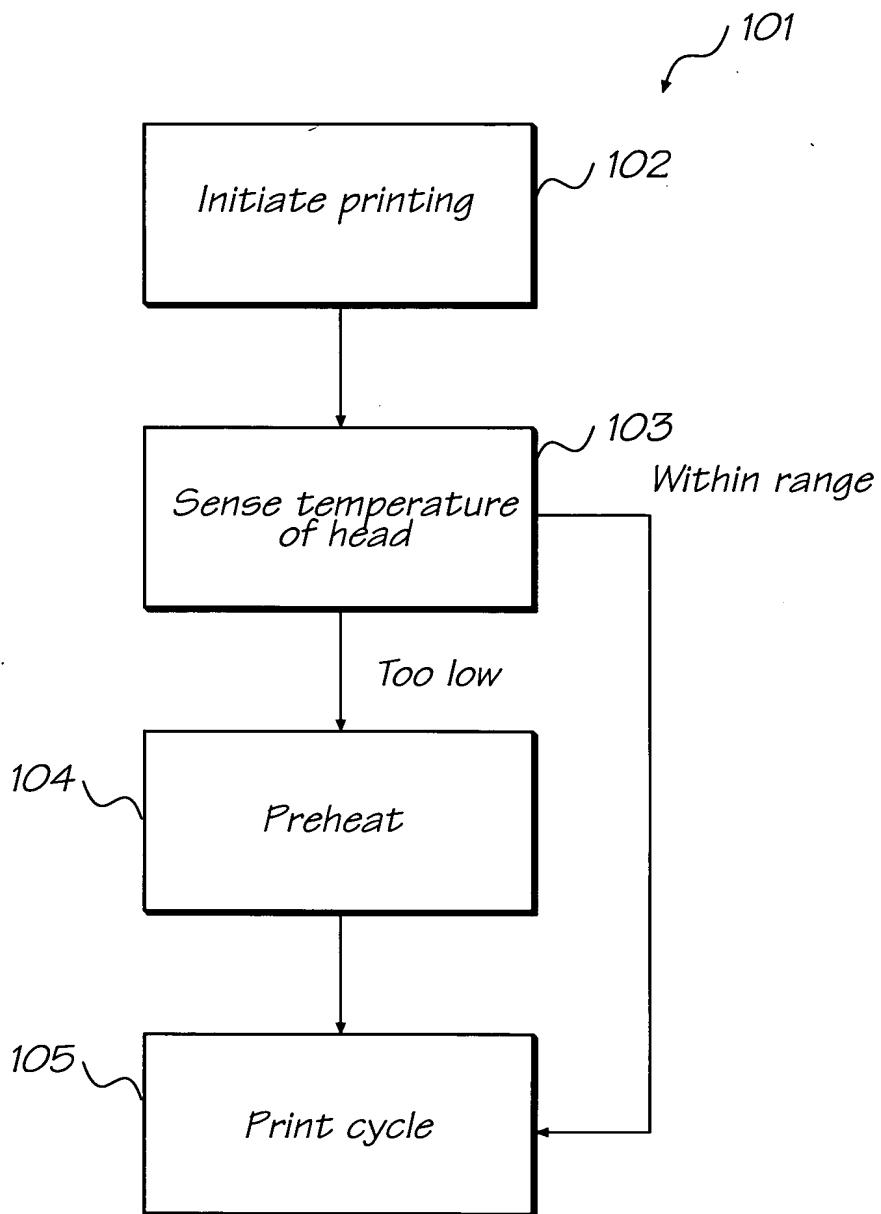


FIG. 12

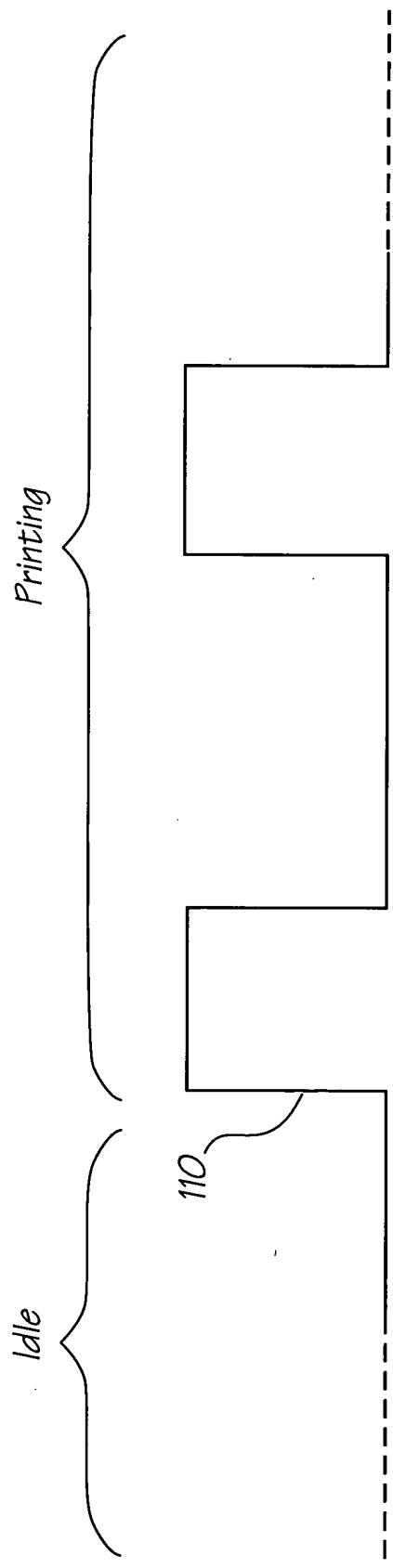


FIG. 13

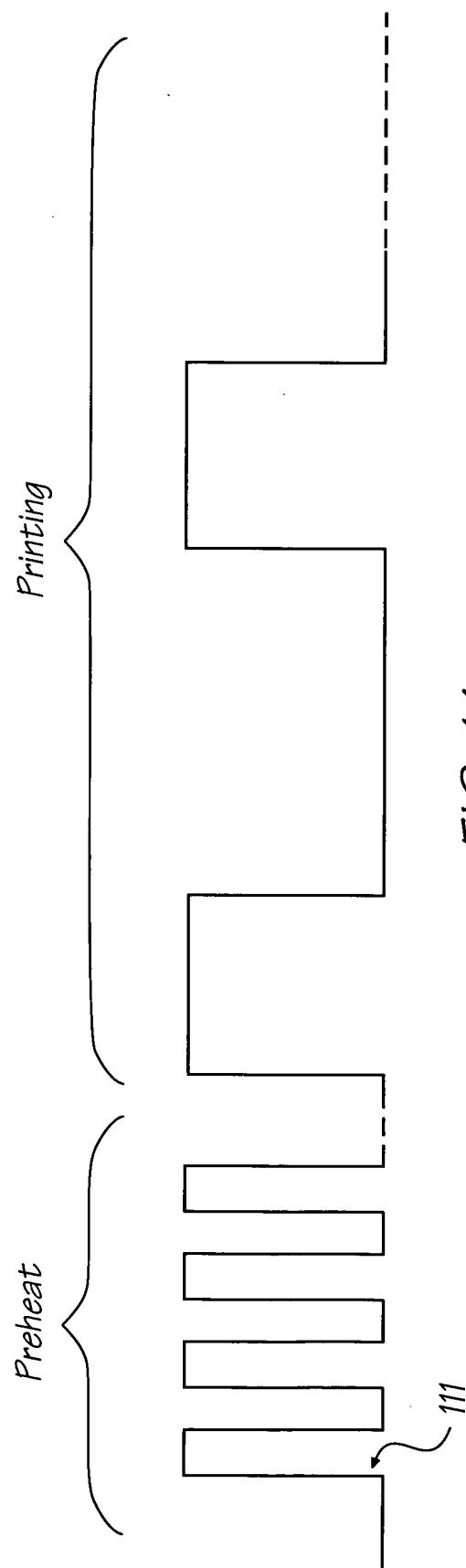


FIG. 14

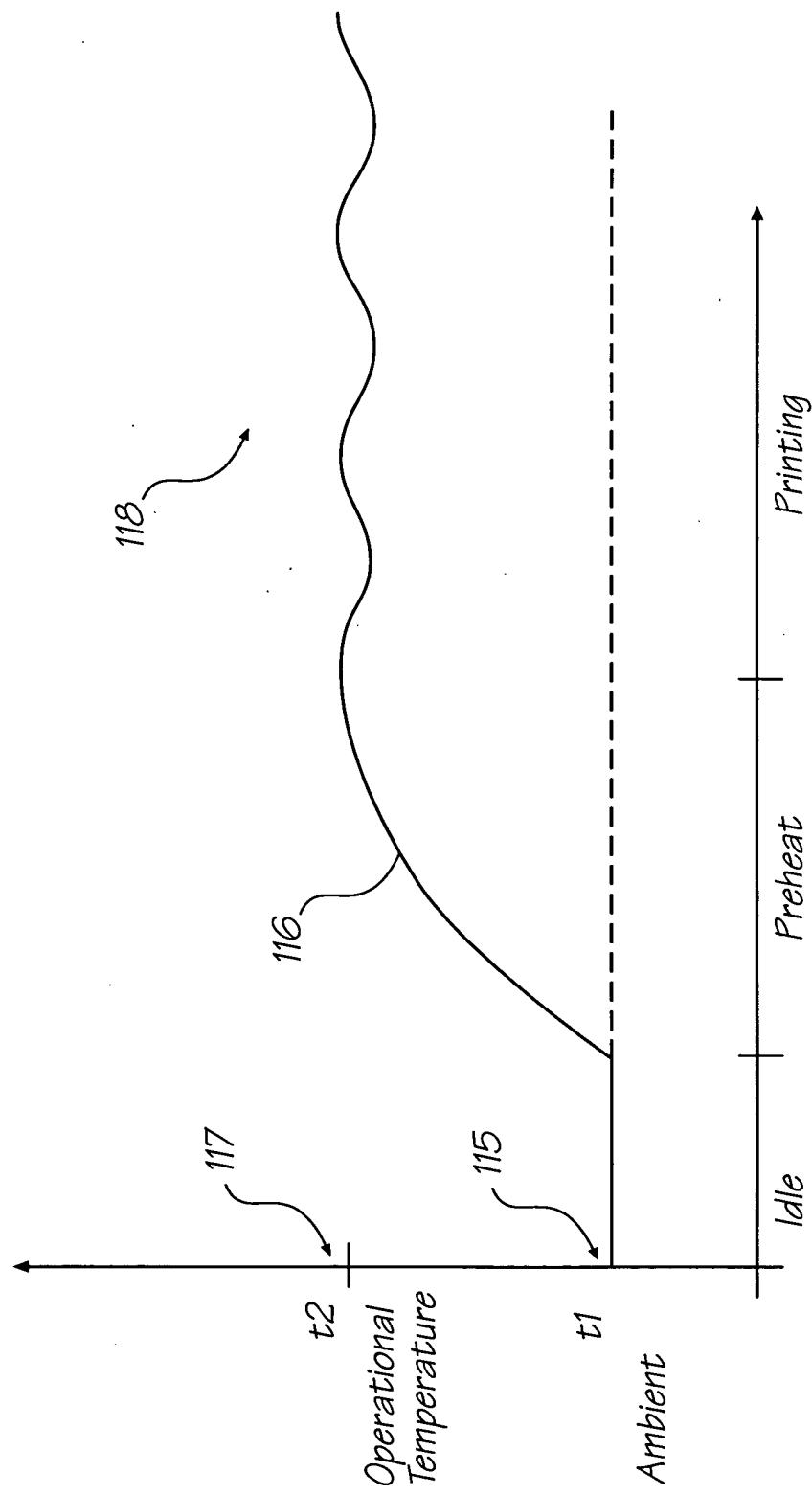


FIG. 15

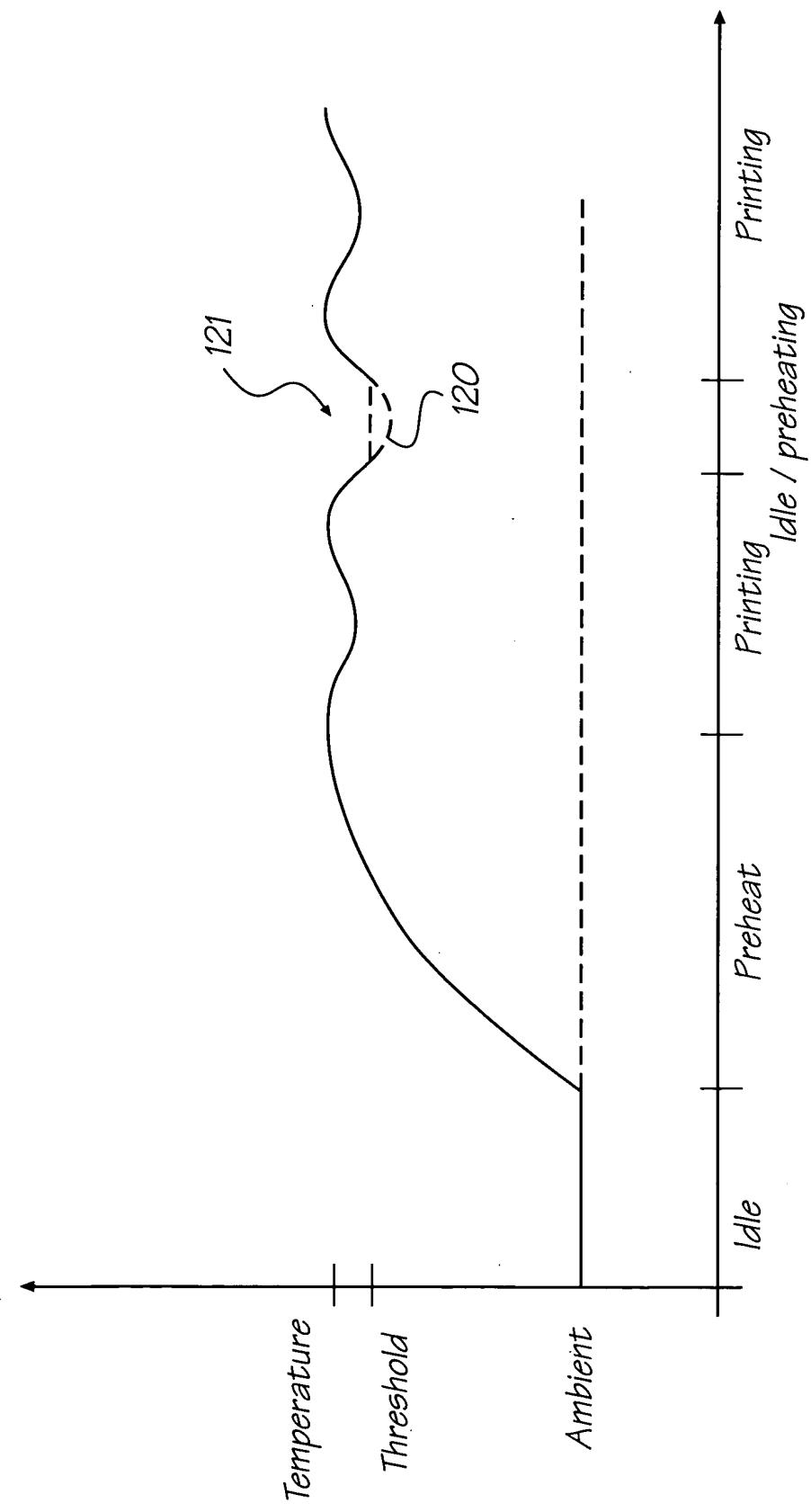


FIG. 16

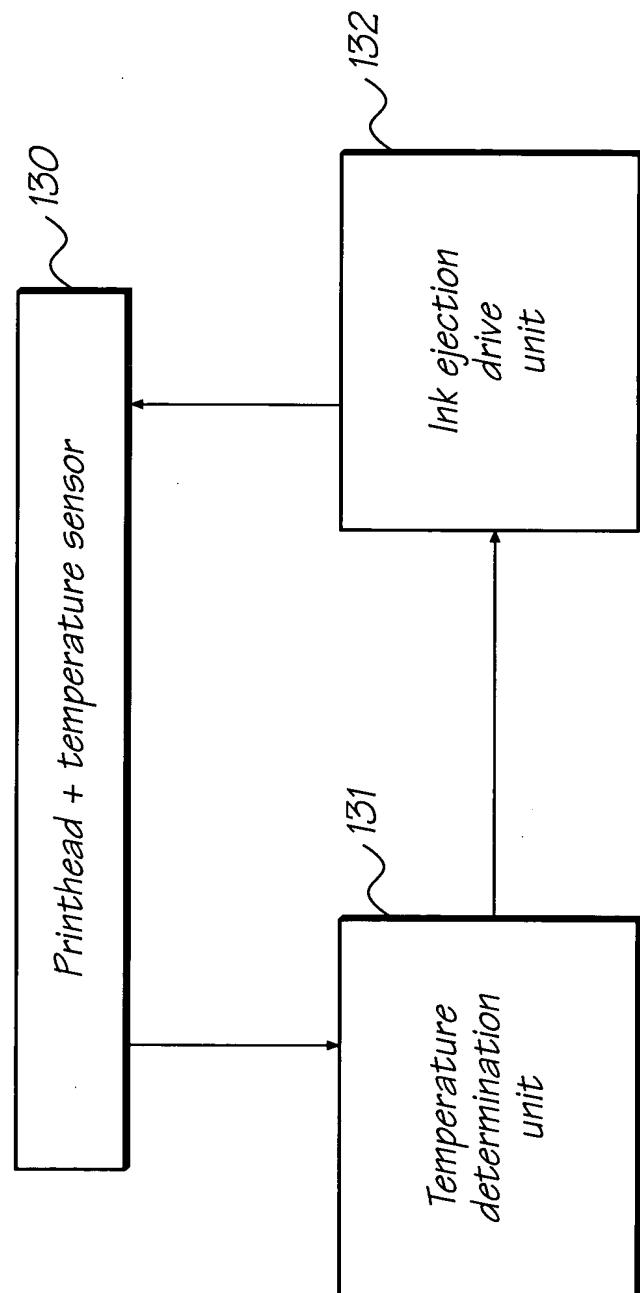
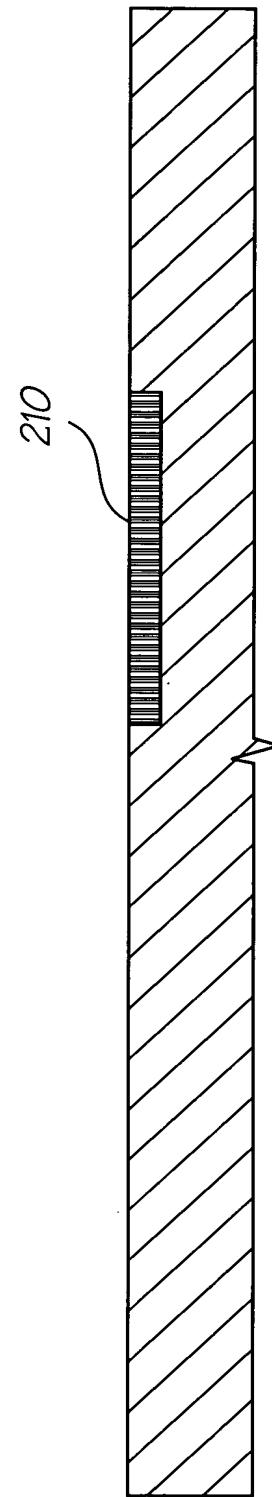
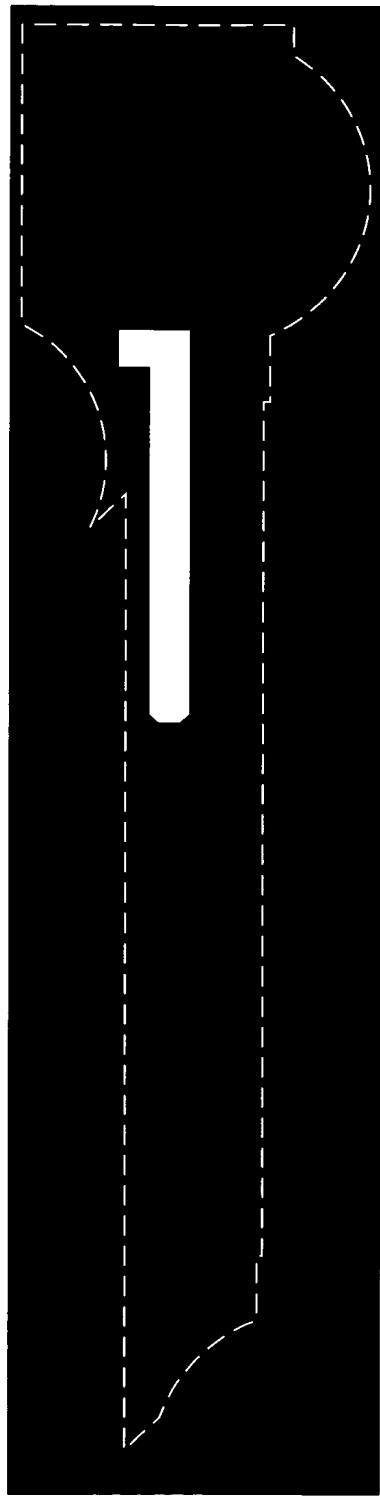
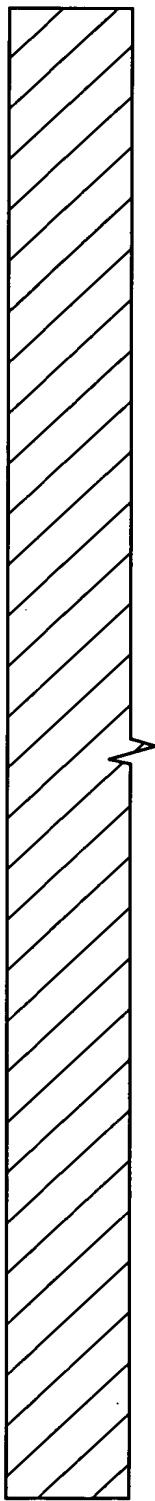


FIG. 17



12/76

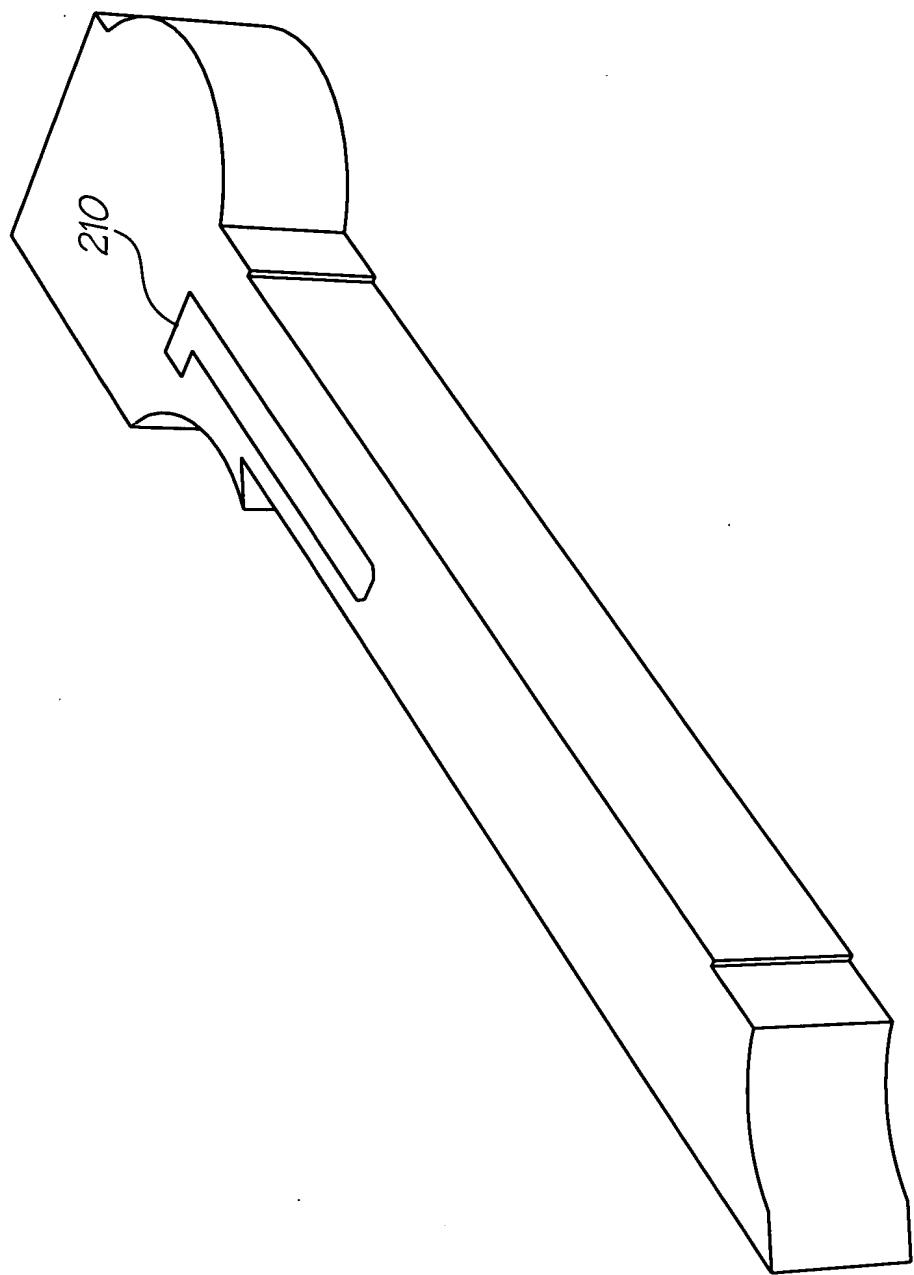
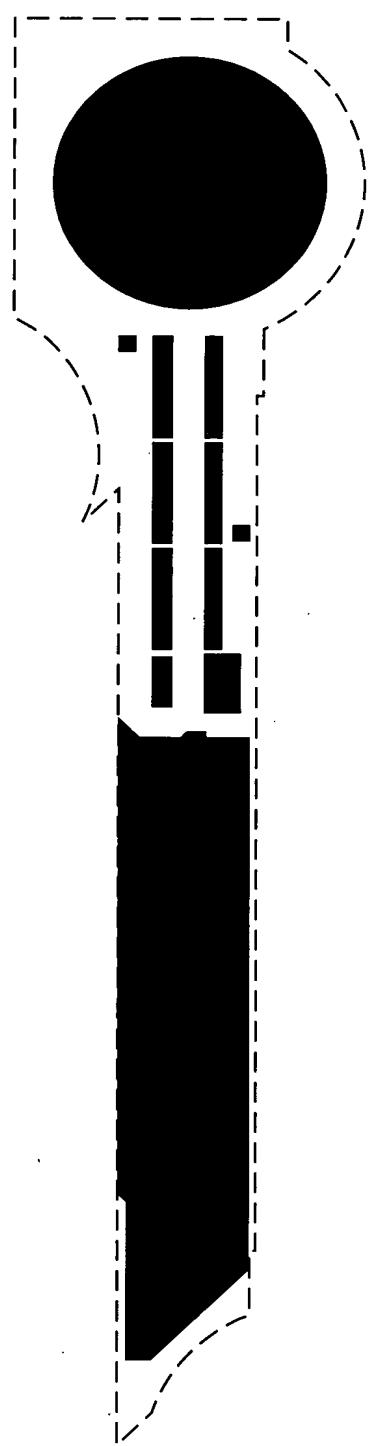
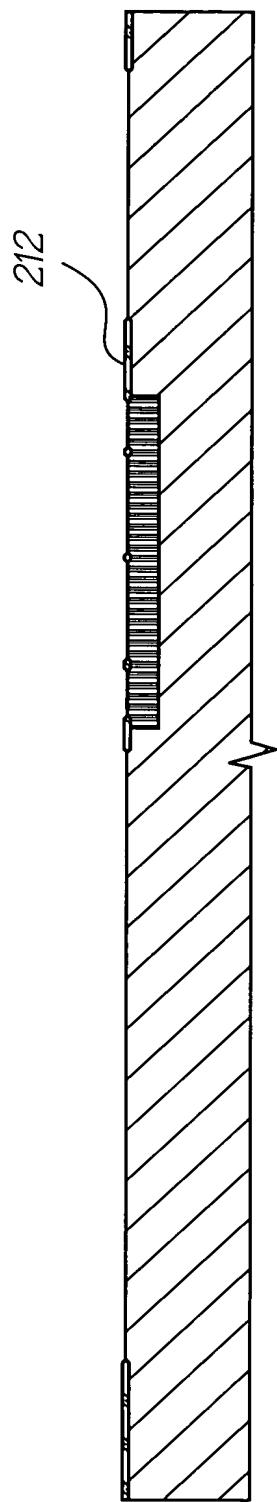


FIG. 21



Active mask

FIG. 22



Grow field oxide

FIG. 23

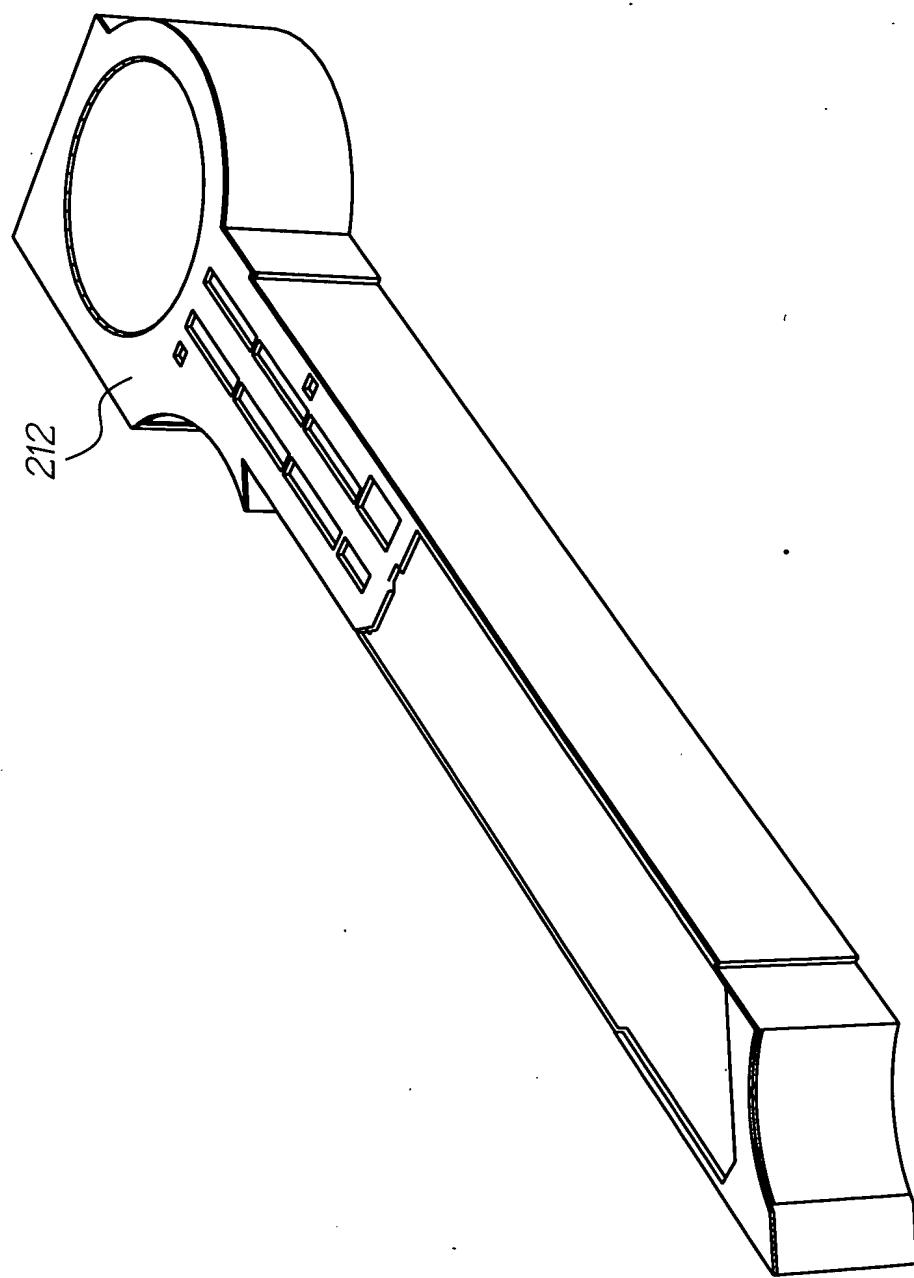
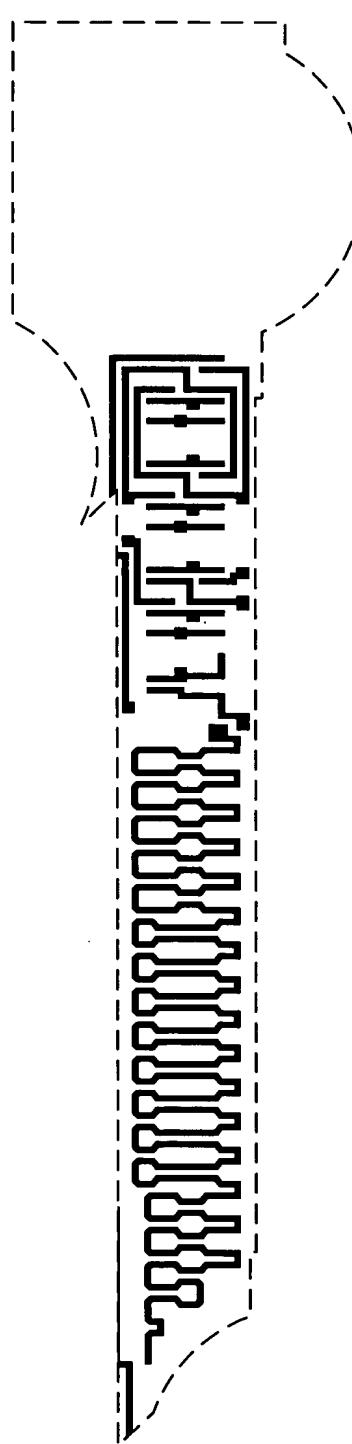
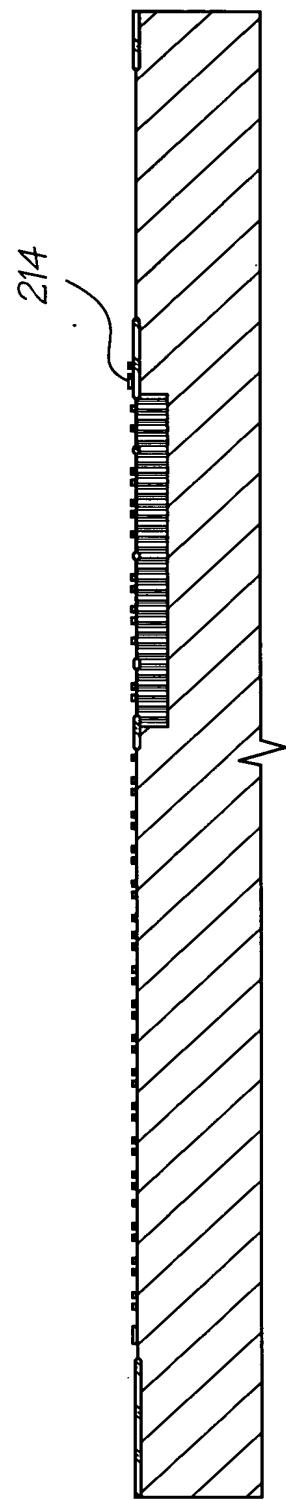


FIG. 24



Poly mask

FIG. 25



Deposit poly

FIG. 26

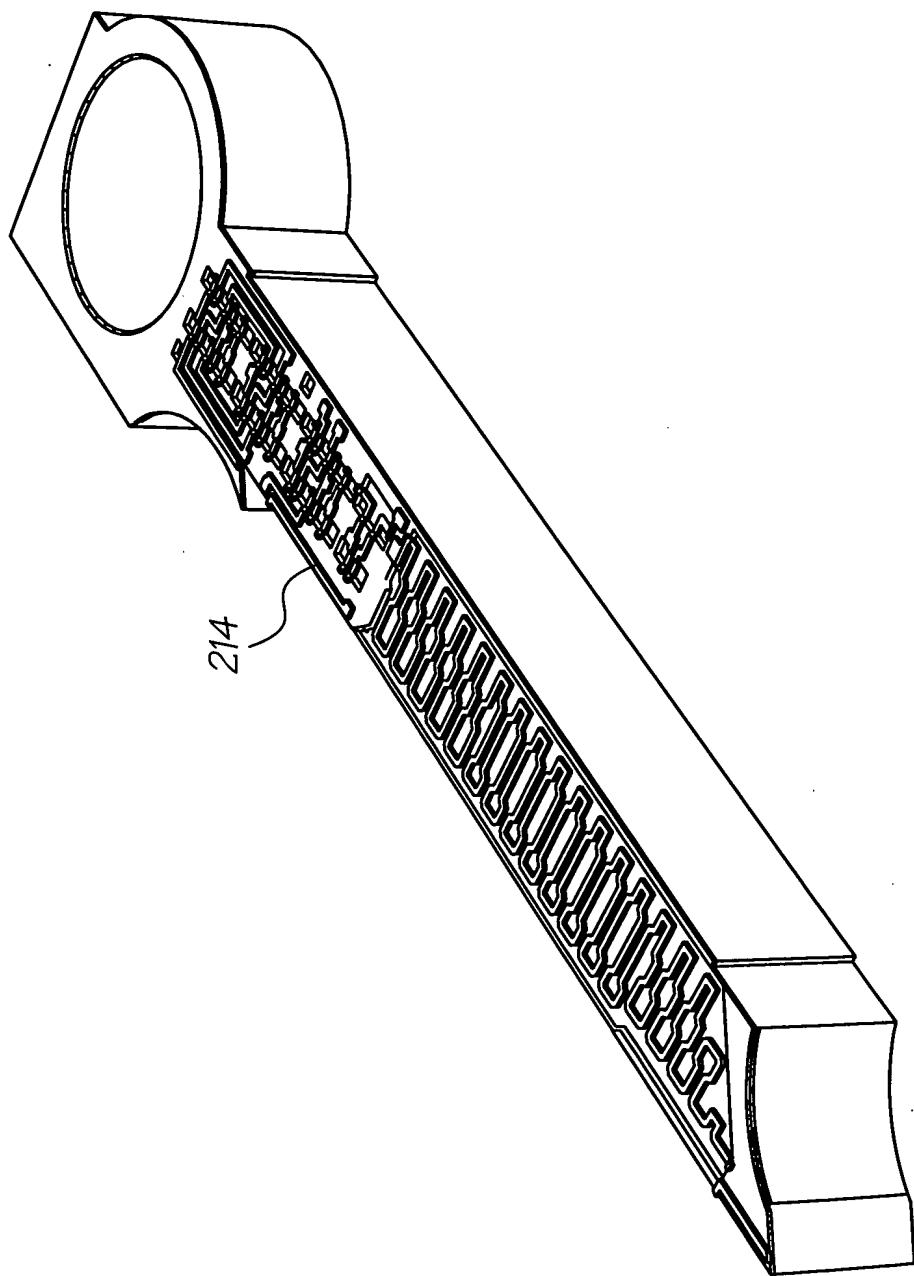


FIG. 27

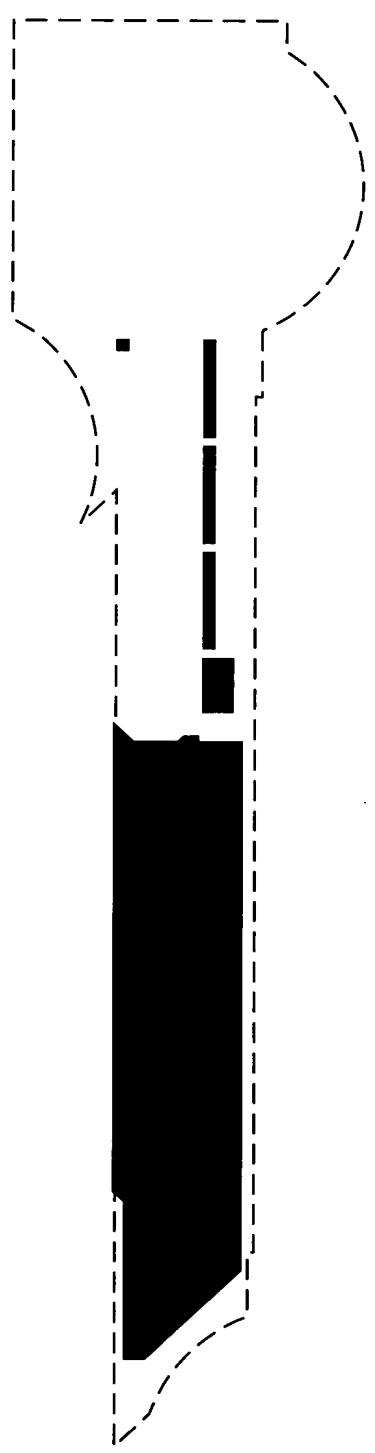


FIG. 28

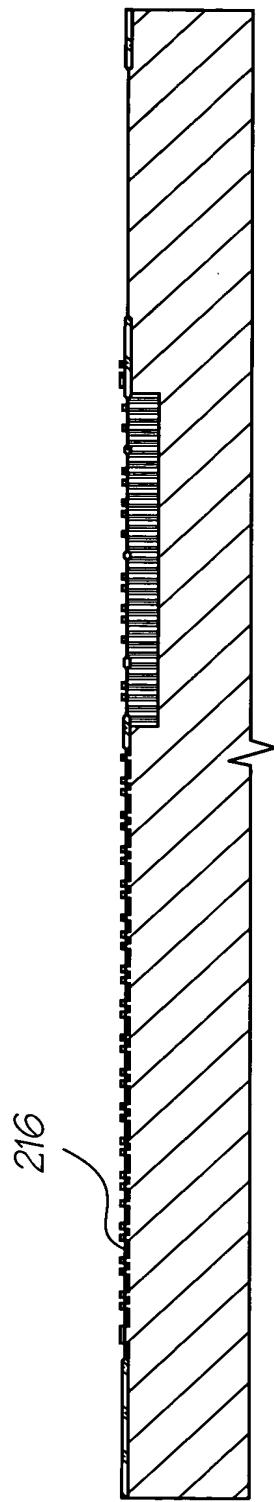


FIG. 29

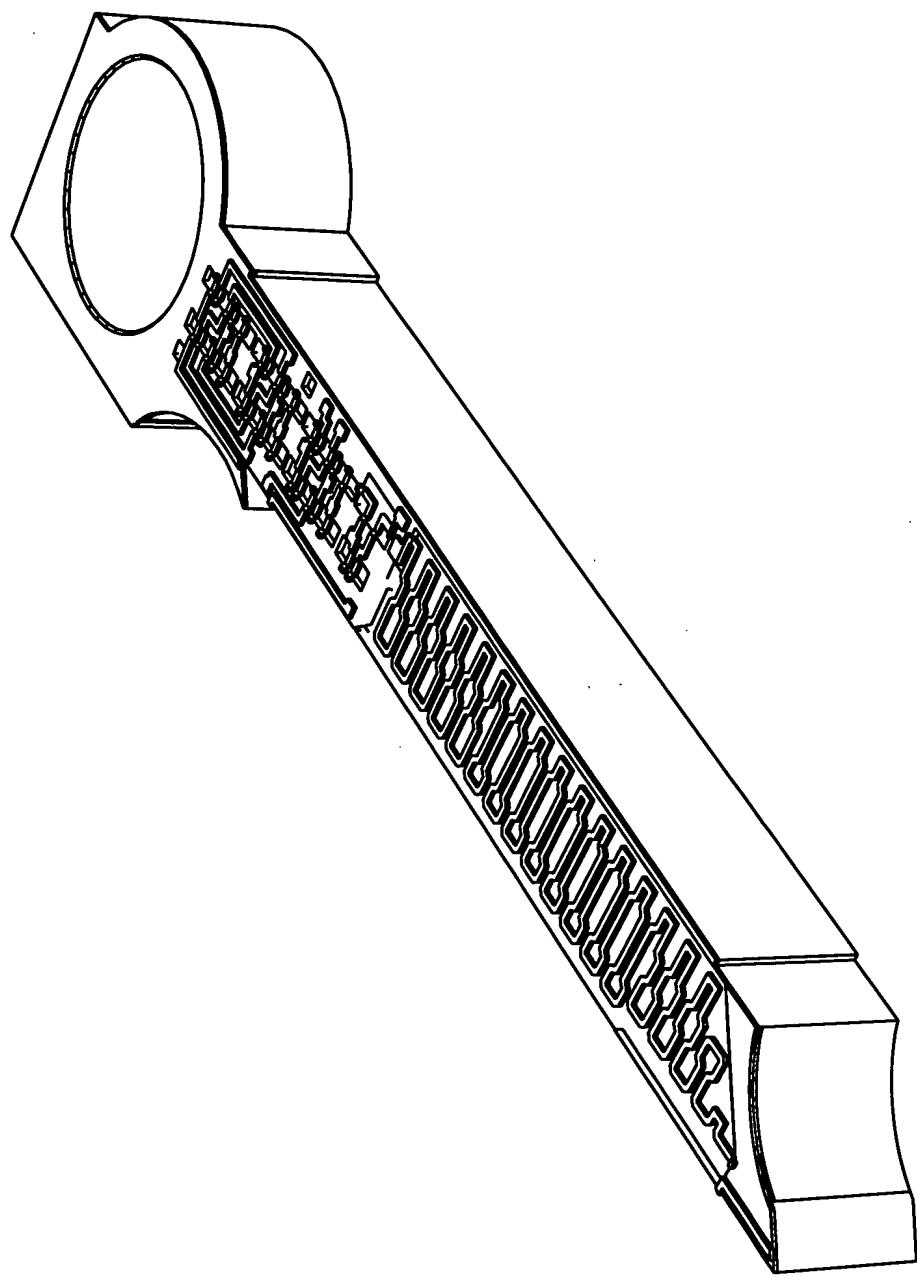


FIG. 30

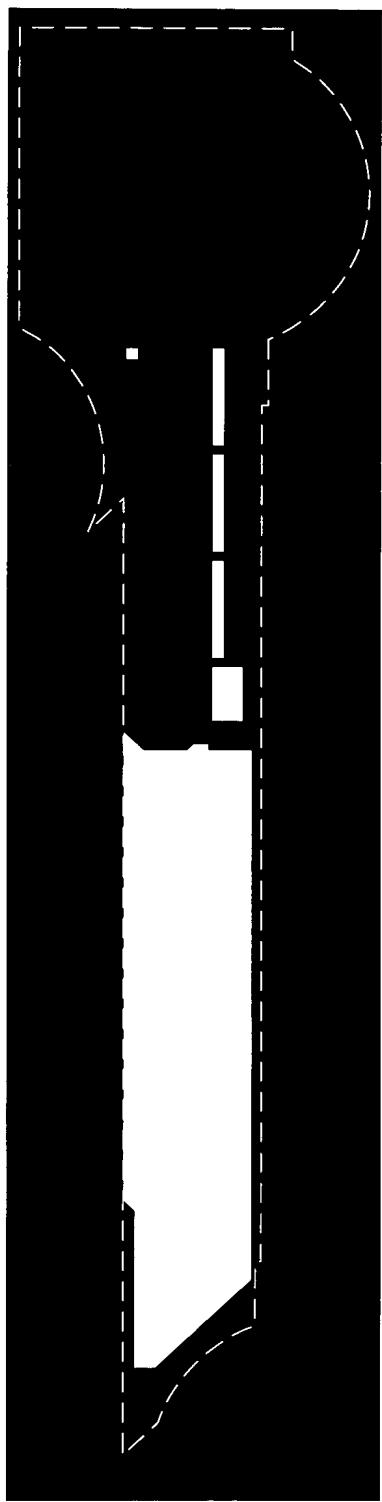


FIG. 31
 p^+ mask

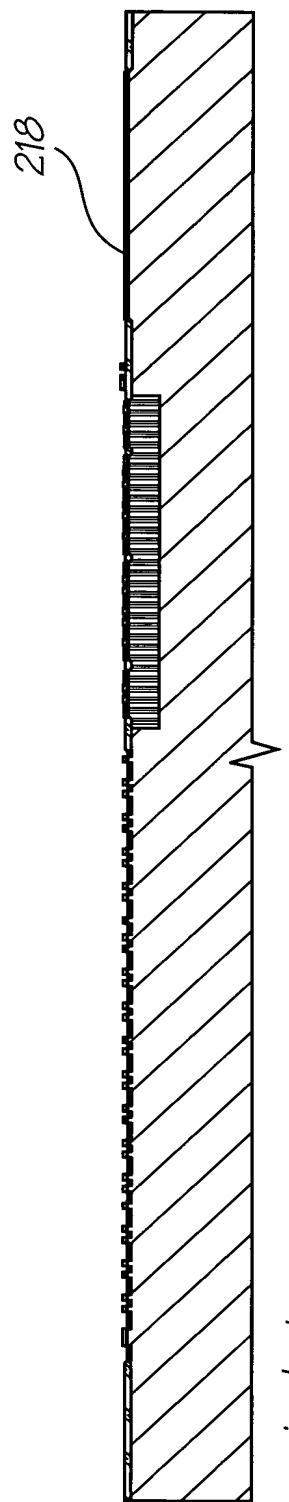


FIG. 32
 p^+ implant

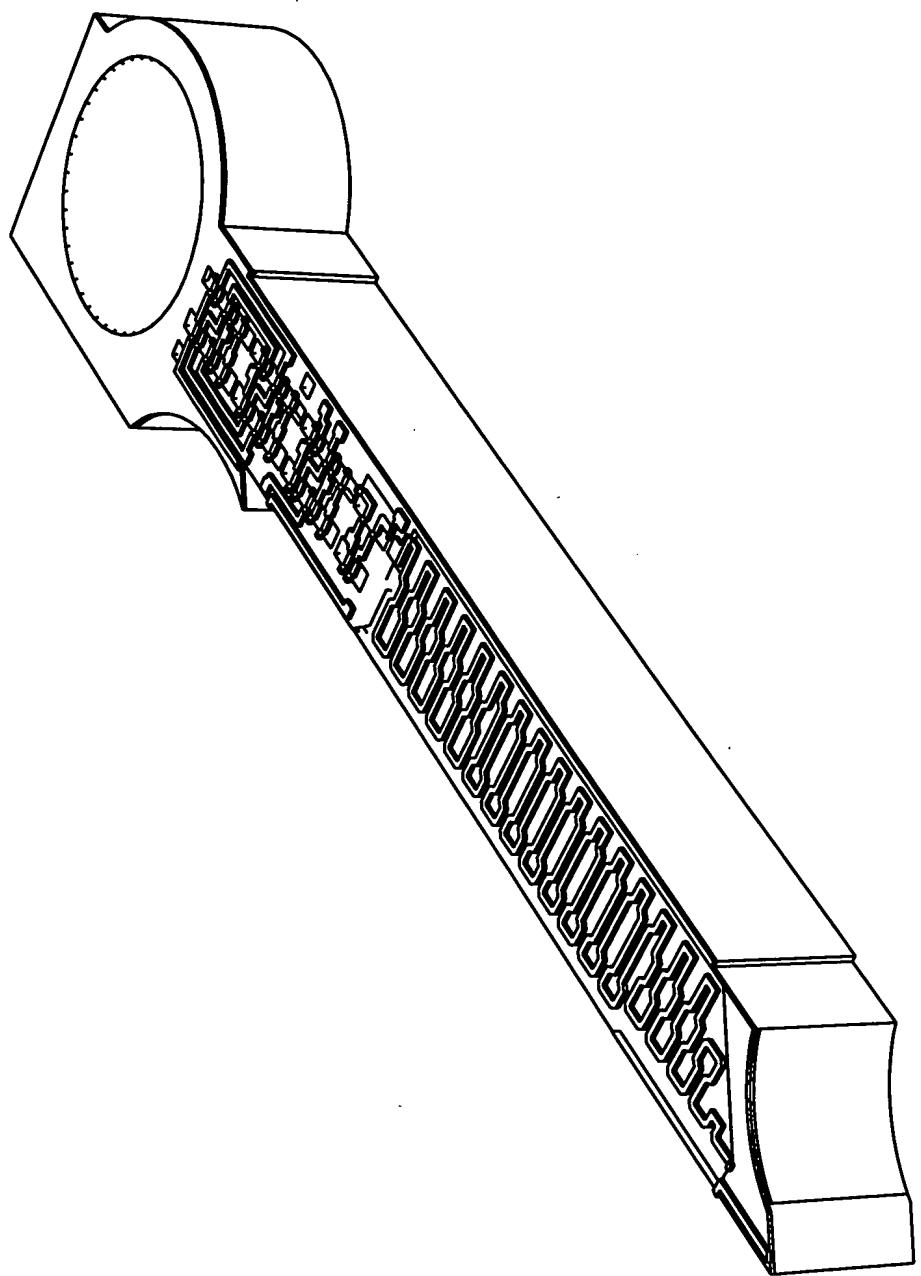


FIG. 33

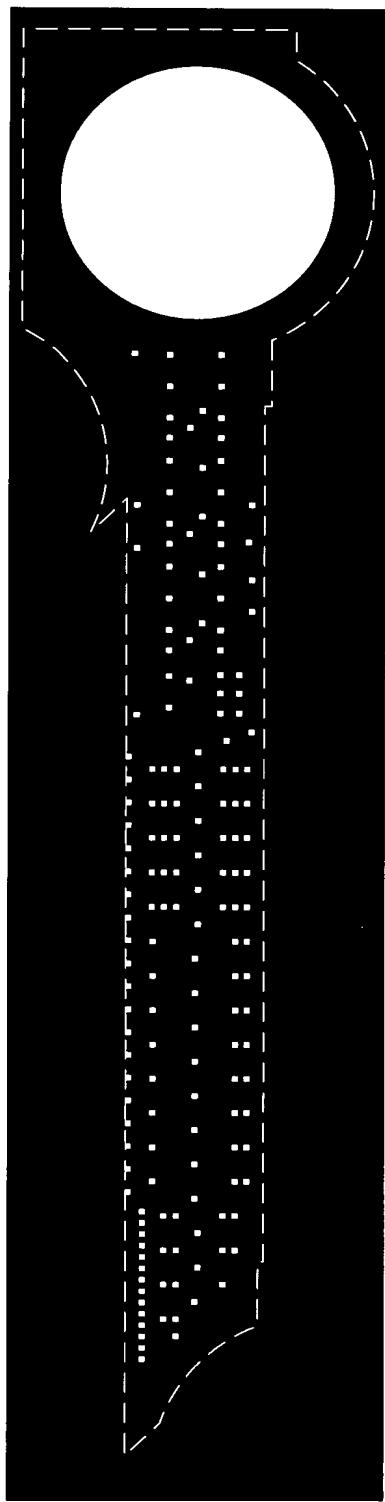


FIG. 34

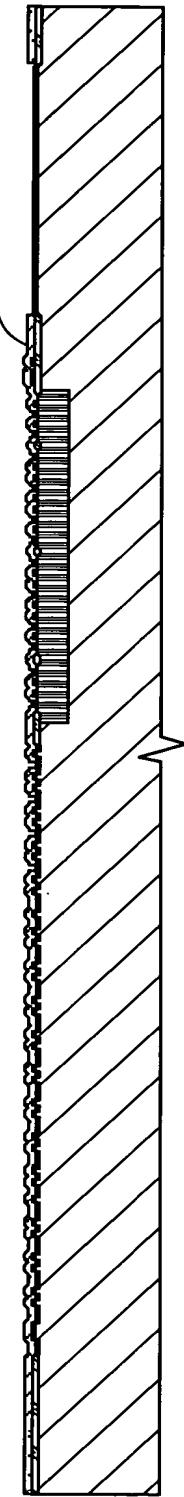


FIG. 35

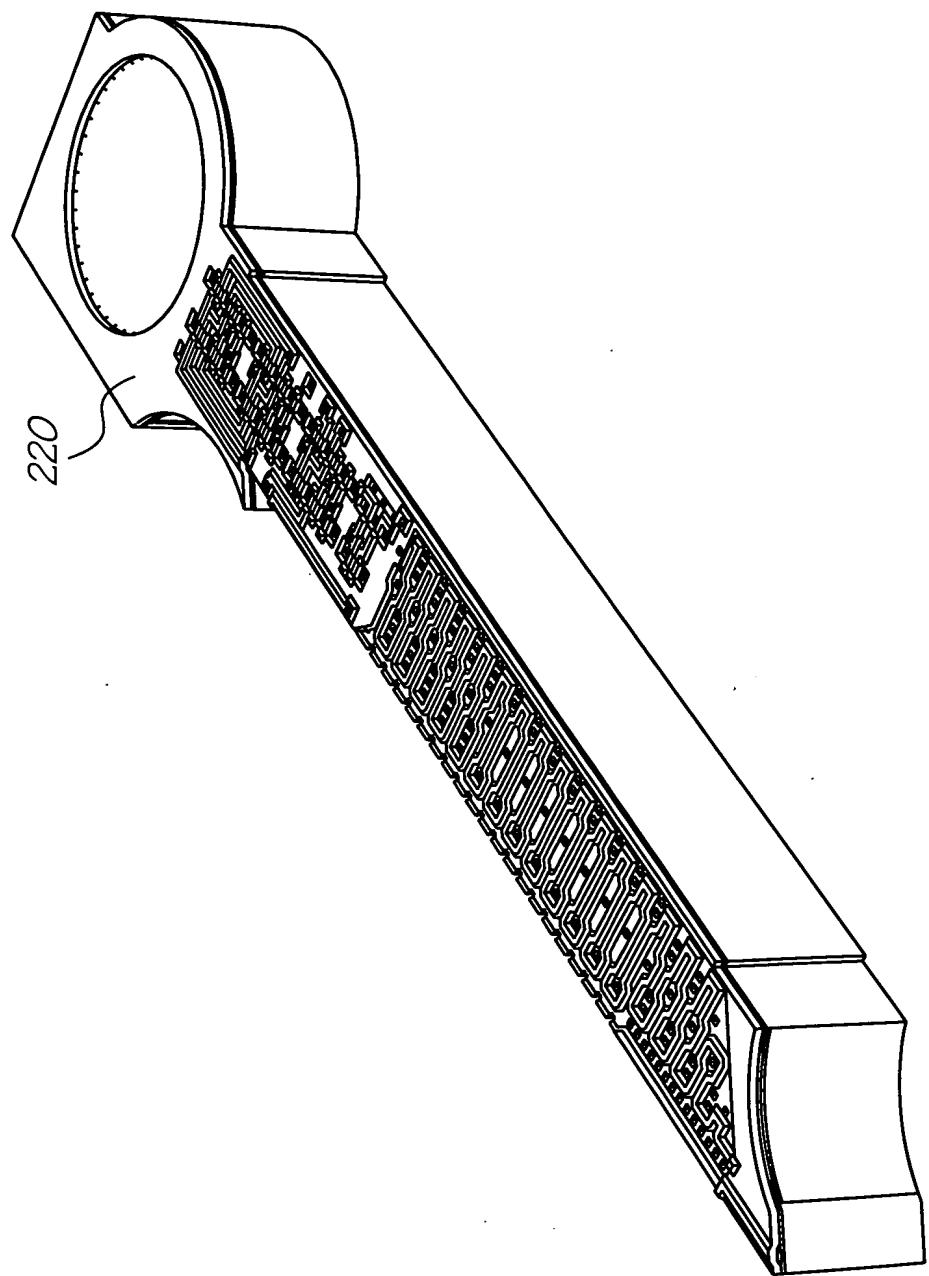
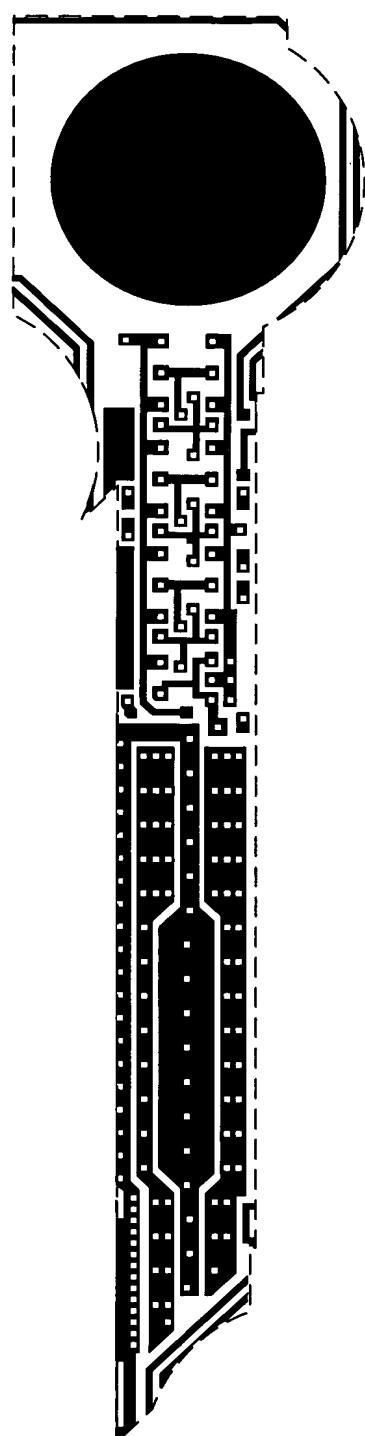
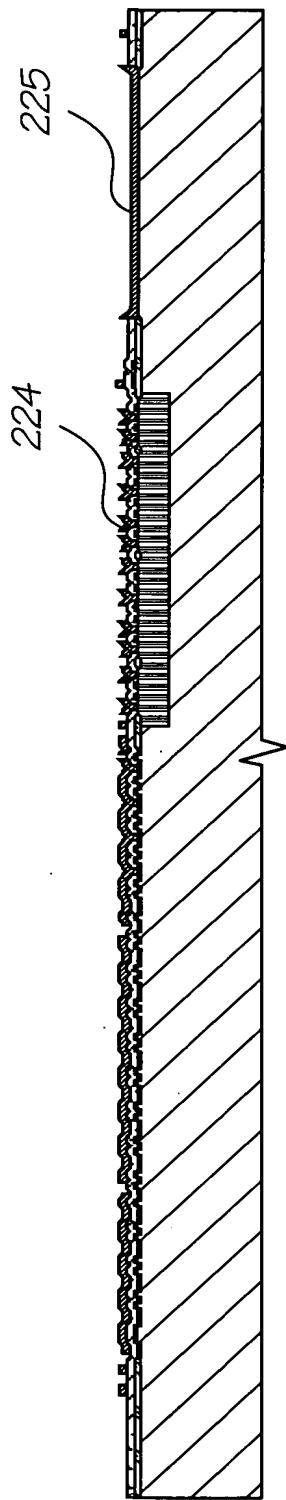


FIG. 36



Metal 1 mask

FIG. 37



Deposit Metal 1

FIG. 38

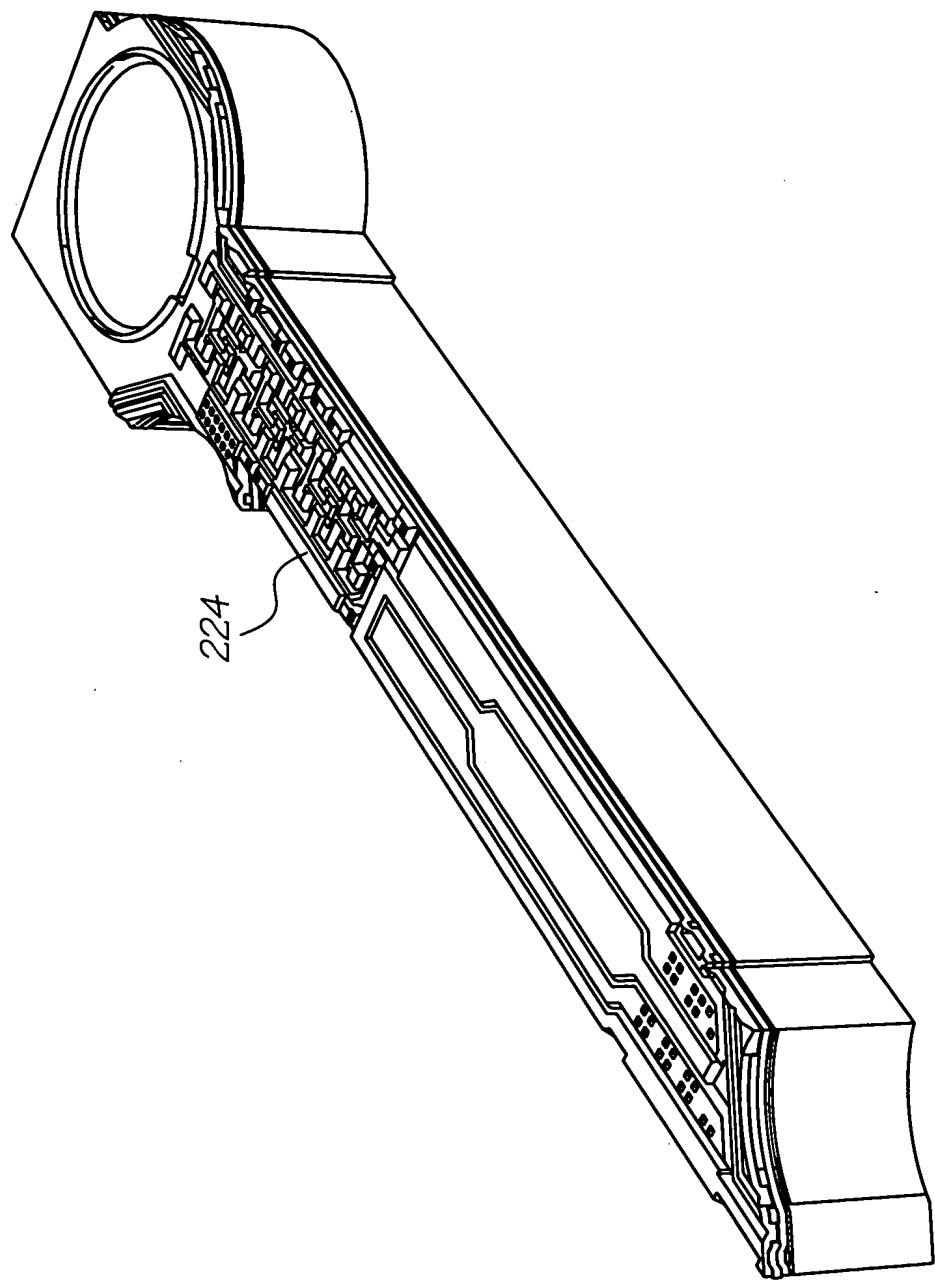
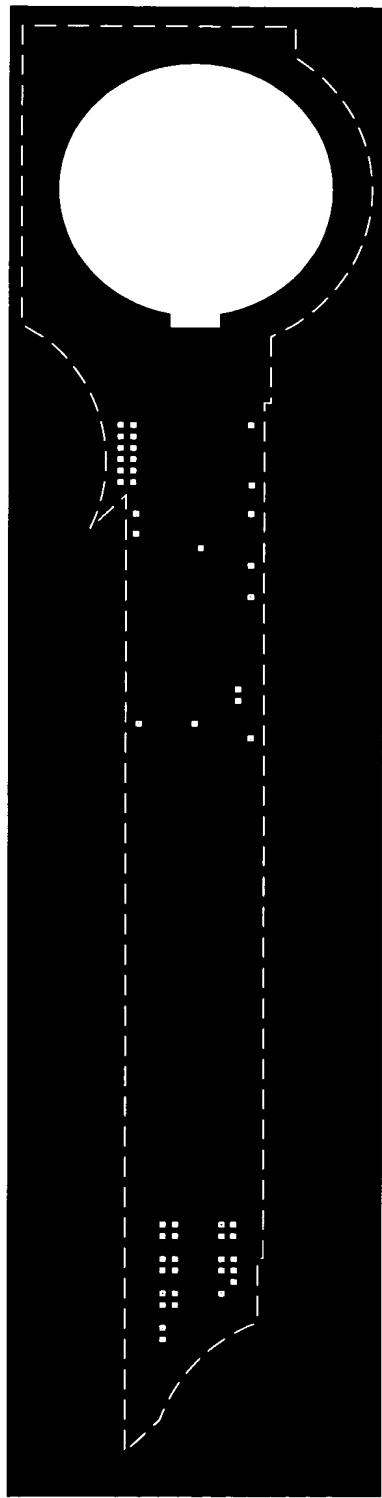
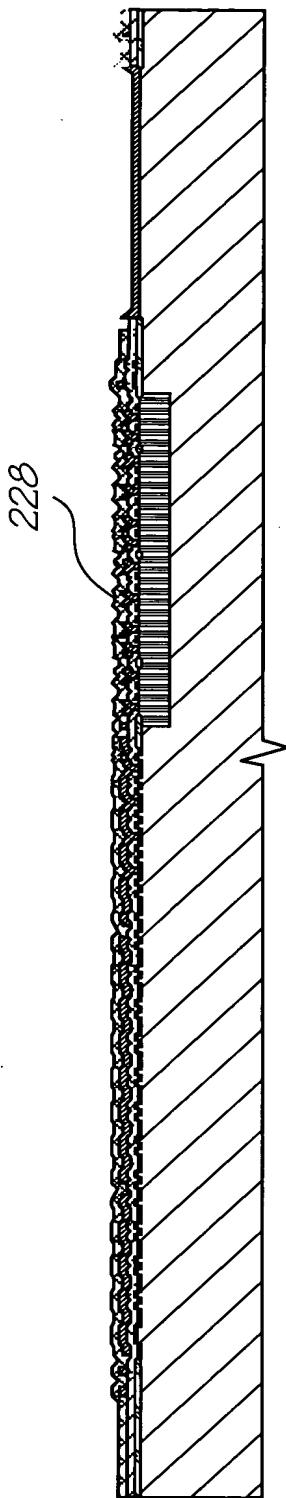


FIG. 39



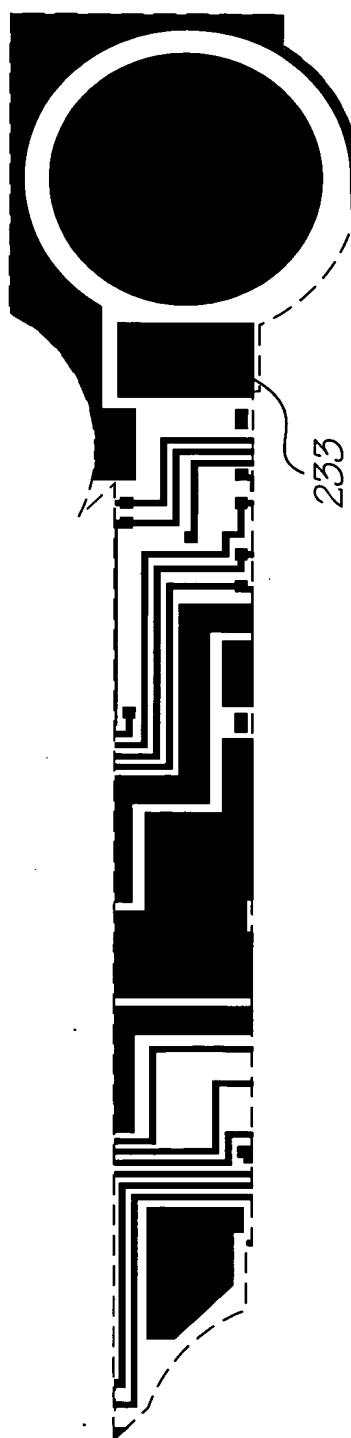
Via 1 mask

FIG. 40



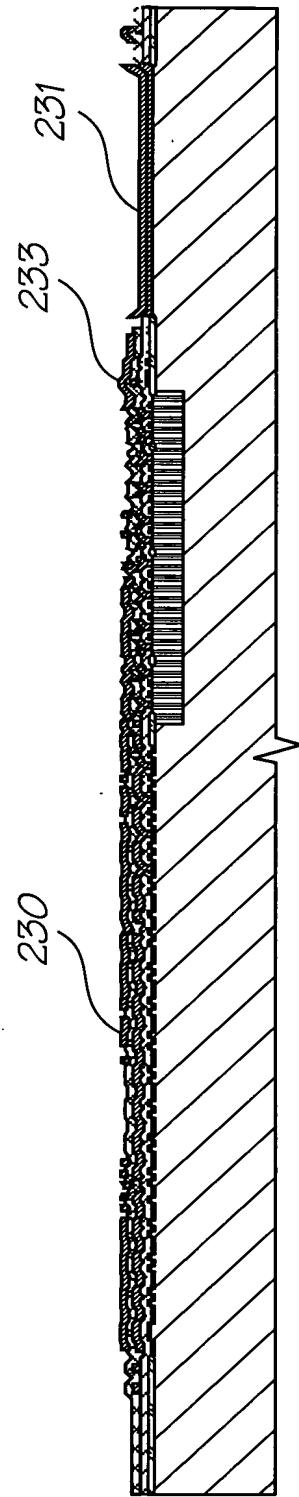
Deposit ILD 2, etch vias

FIG. 41



Metal 2 mask

FIG. 42



Deposit metal 2

FIG. 43

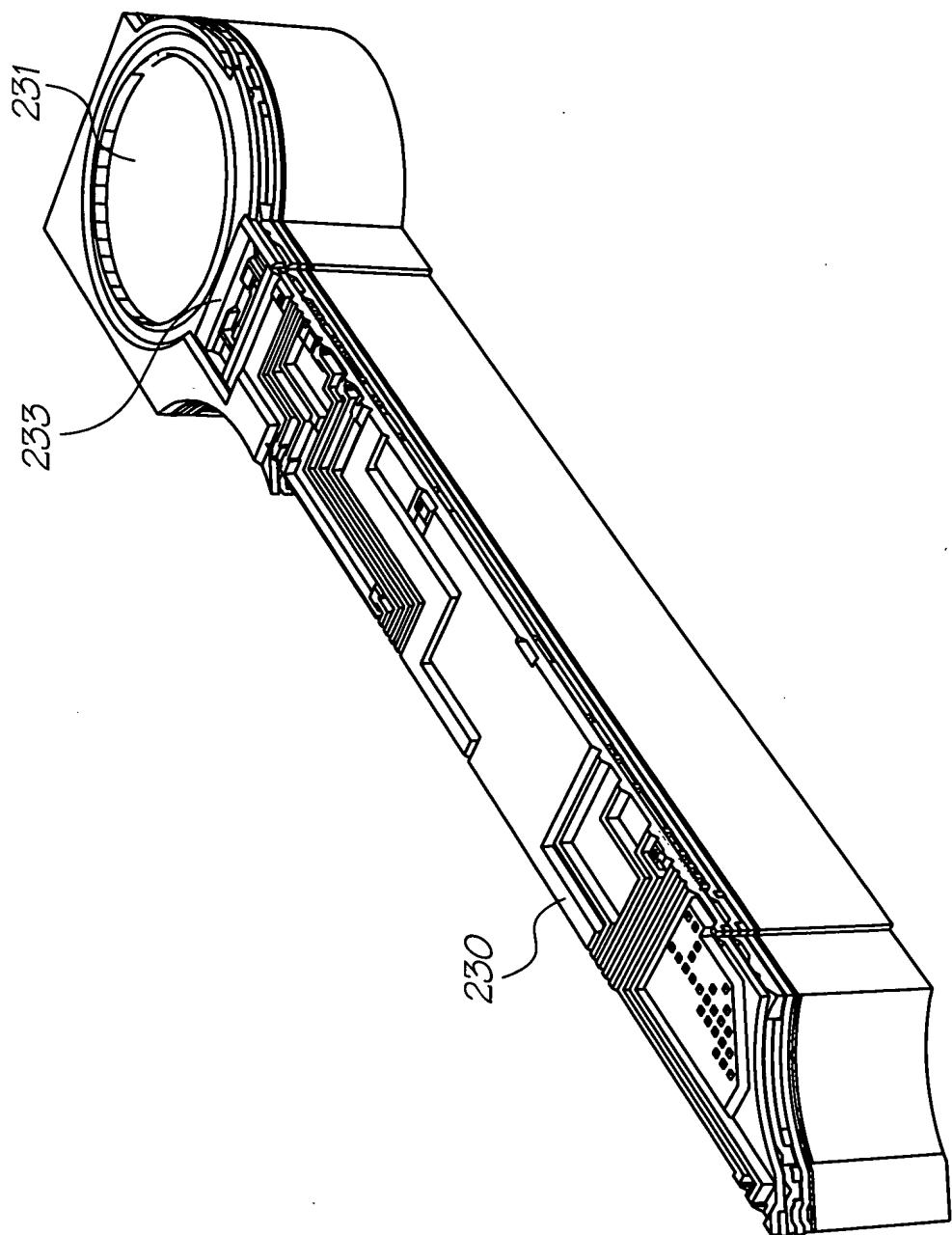
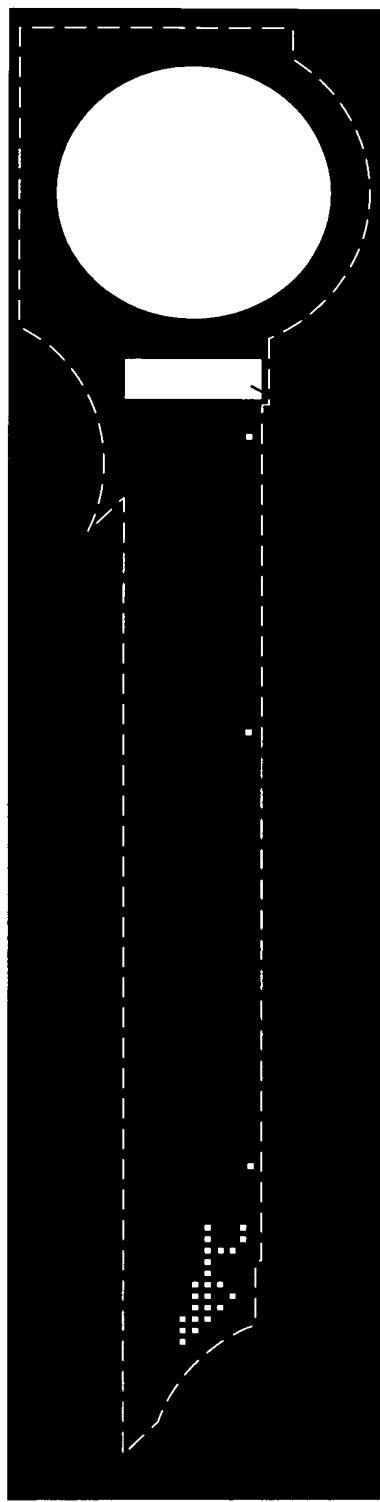
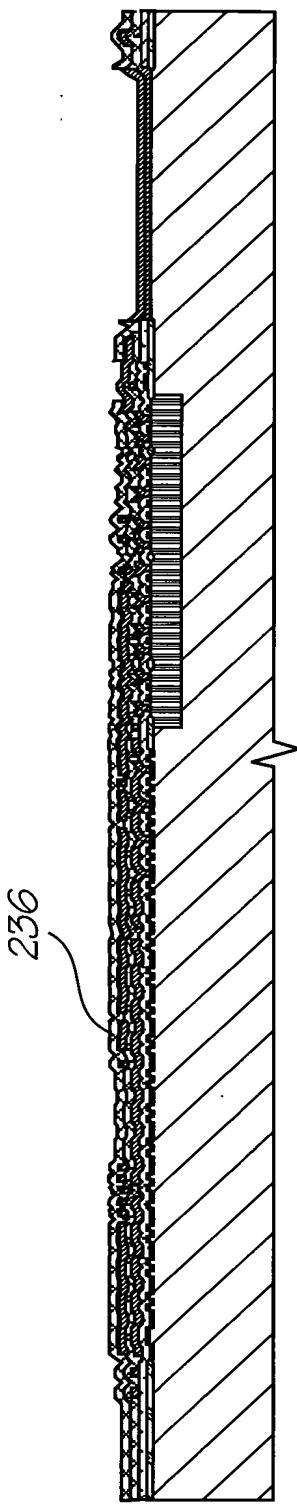


FIG. 44



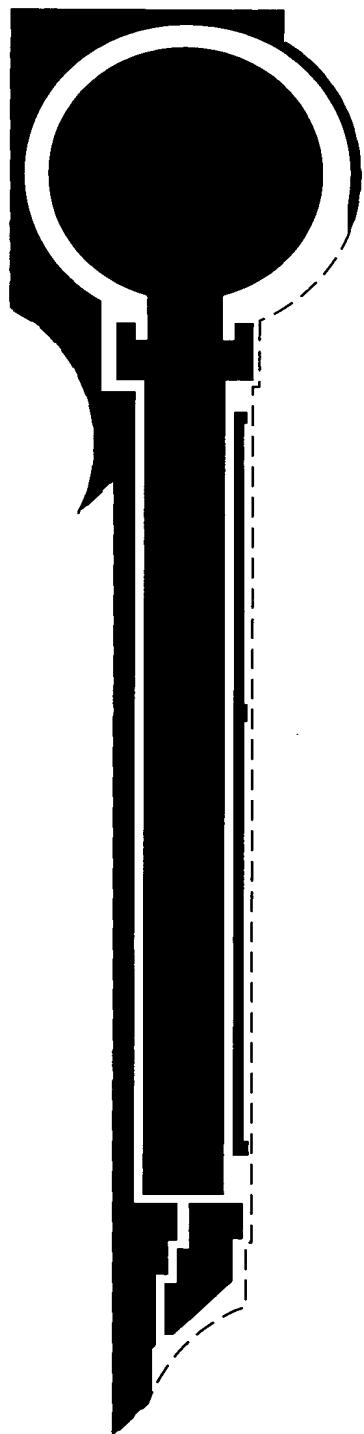
Via 2 mask

FIG. 45



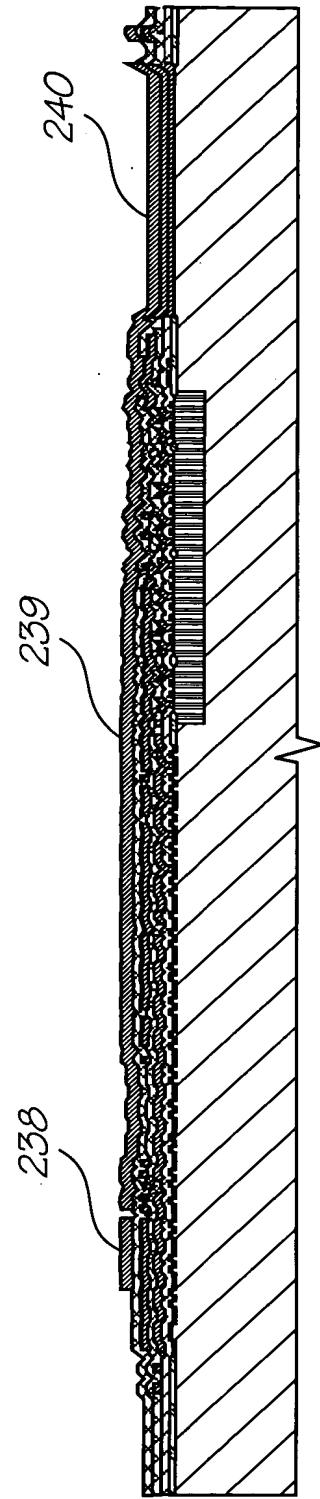
Deposit ILD 3, etch vias

FIG. 46



Metal 3 mask

FIG. 47



Deposit metal 3

FIG. 48

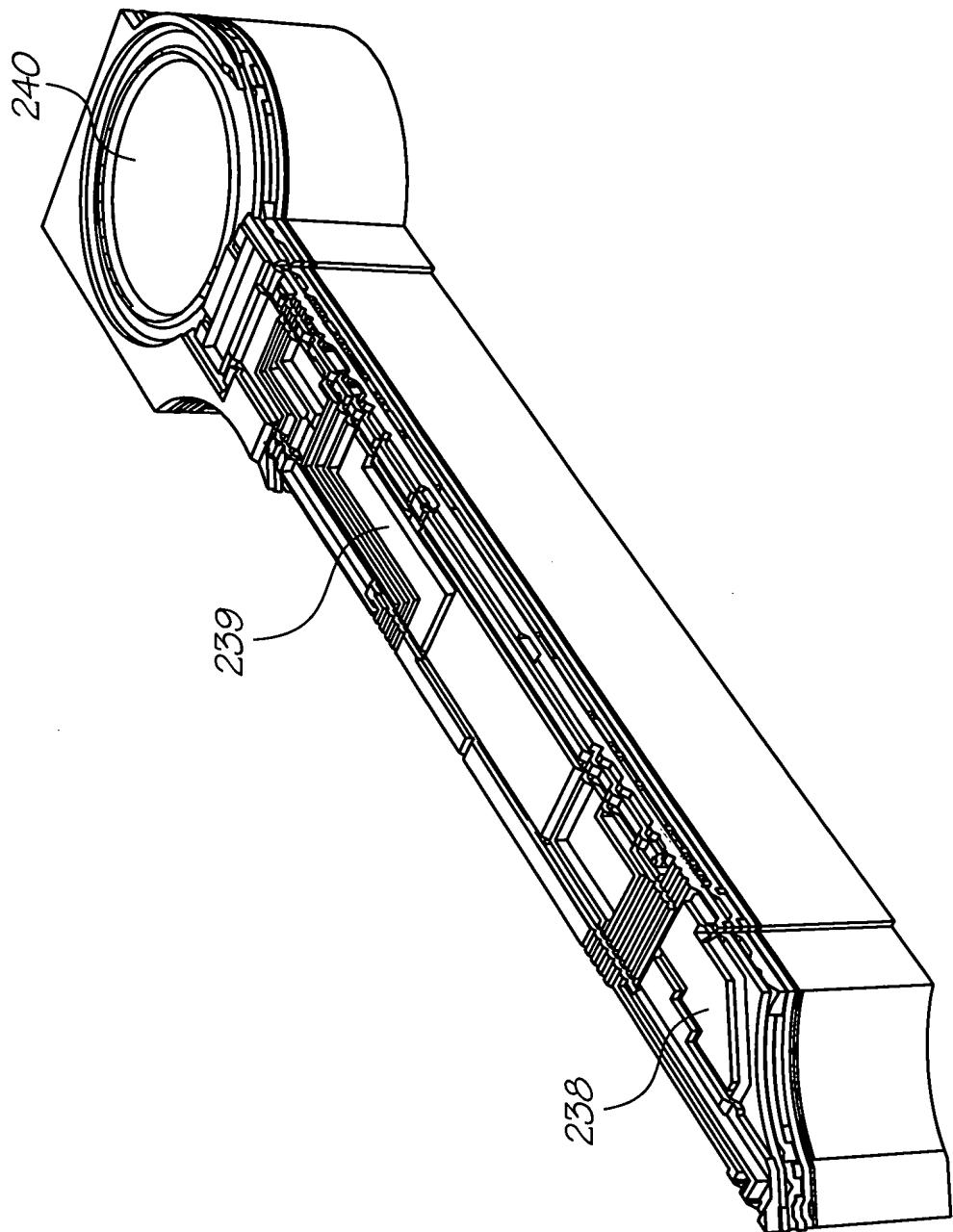
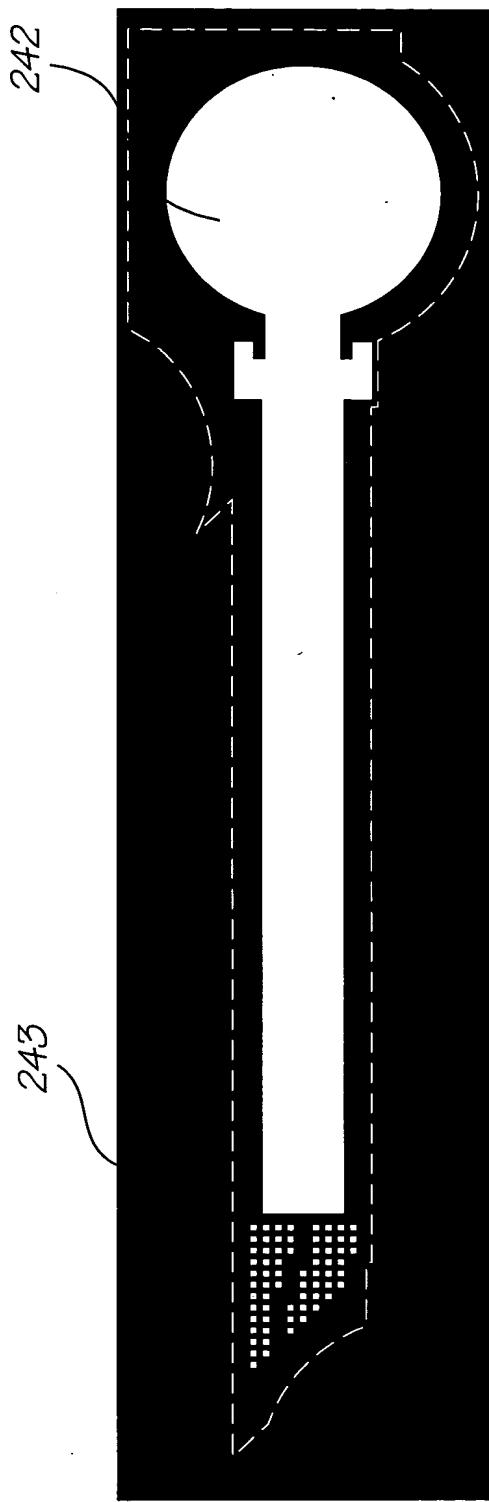
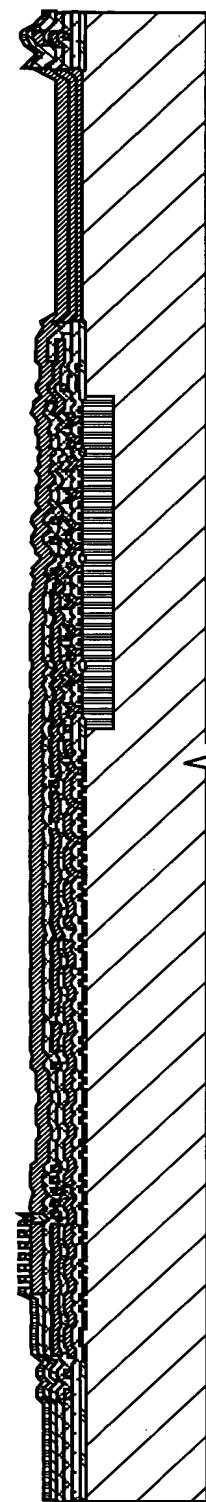


FIG. 49



Via 3 / Passivation mask

FIG. 50



Deposit passivation oxide & nitride, etch vias

FIG. 51

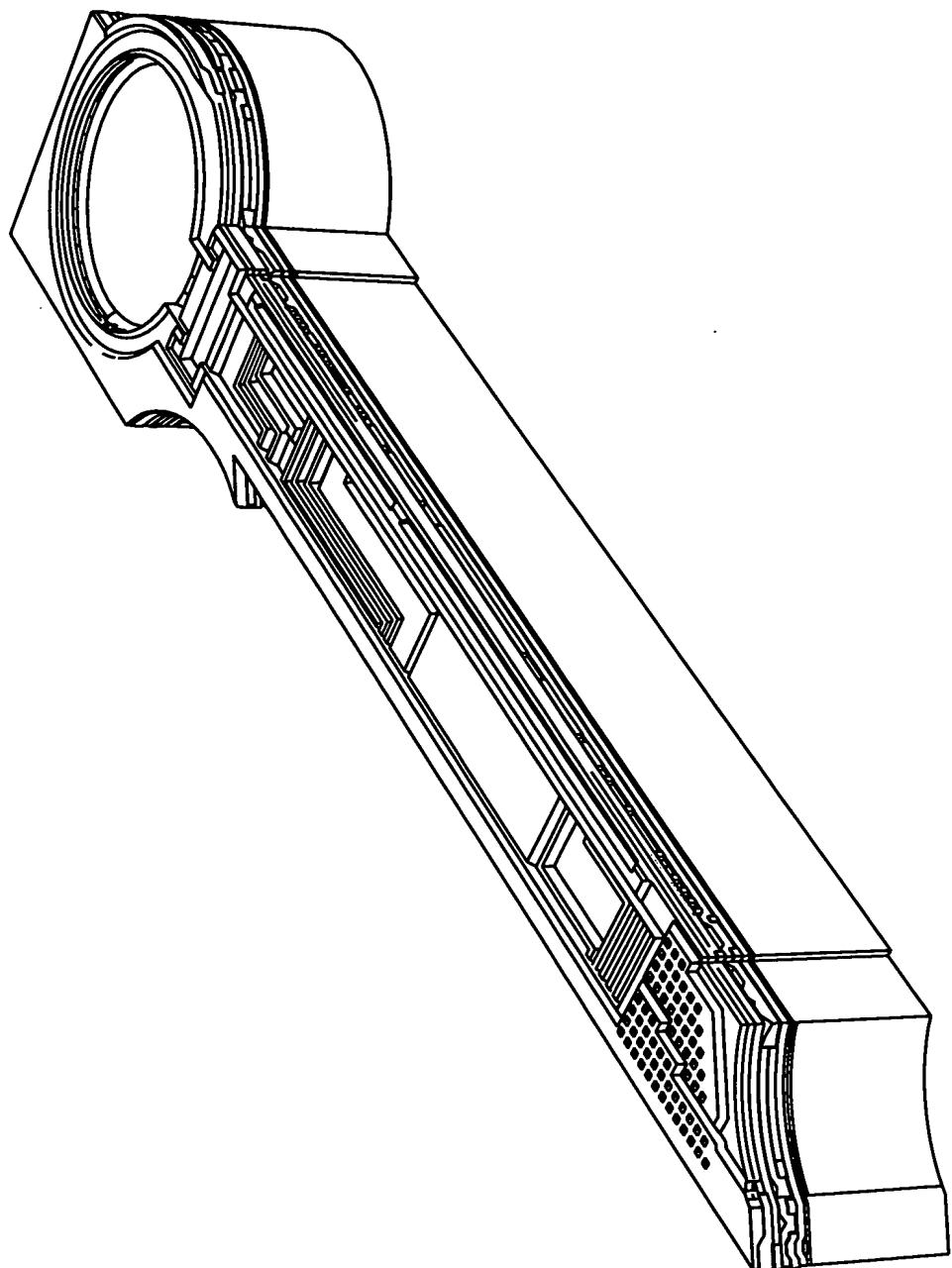
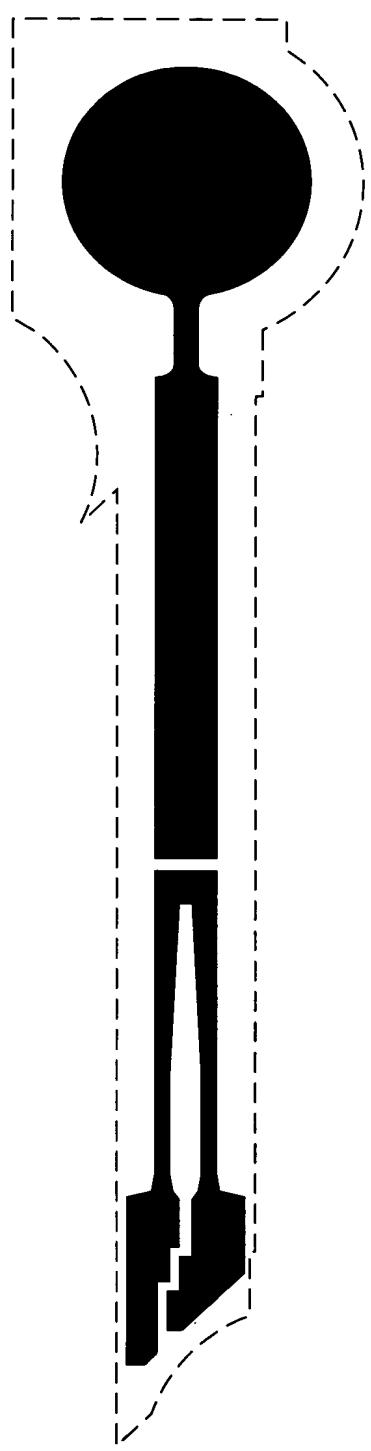
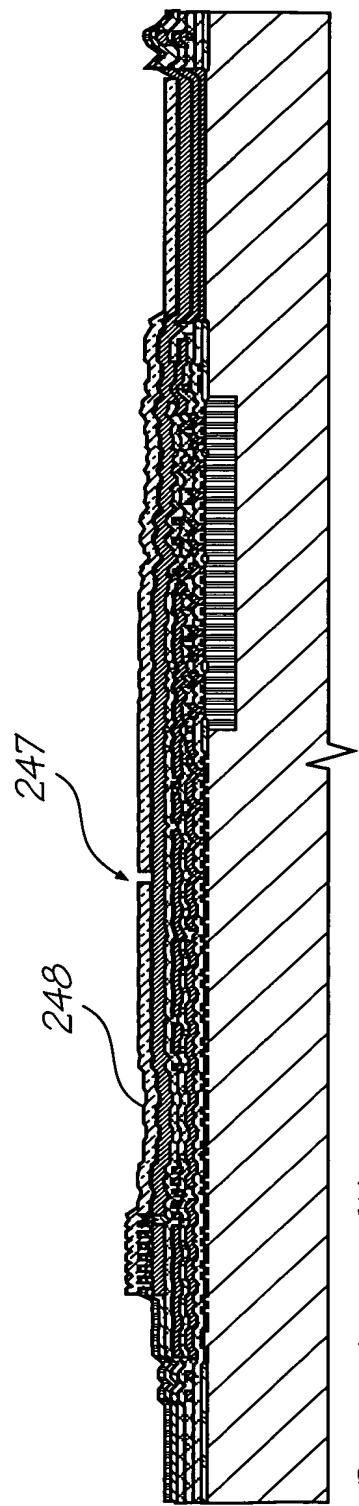


FIG. 52



Heater mask

FIG. 53



Deposit heater TiN

FIG. 54

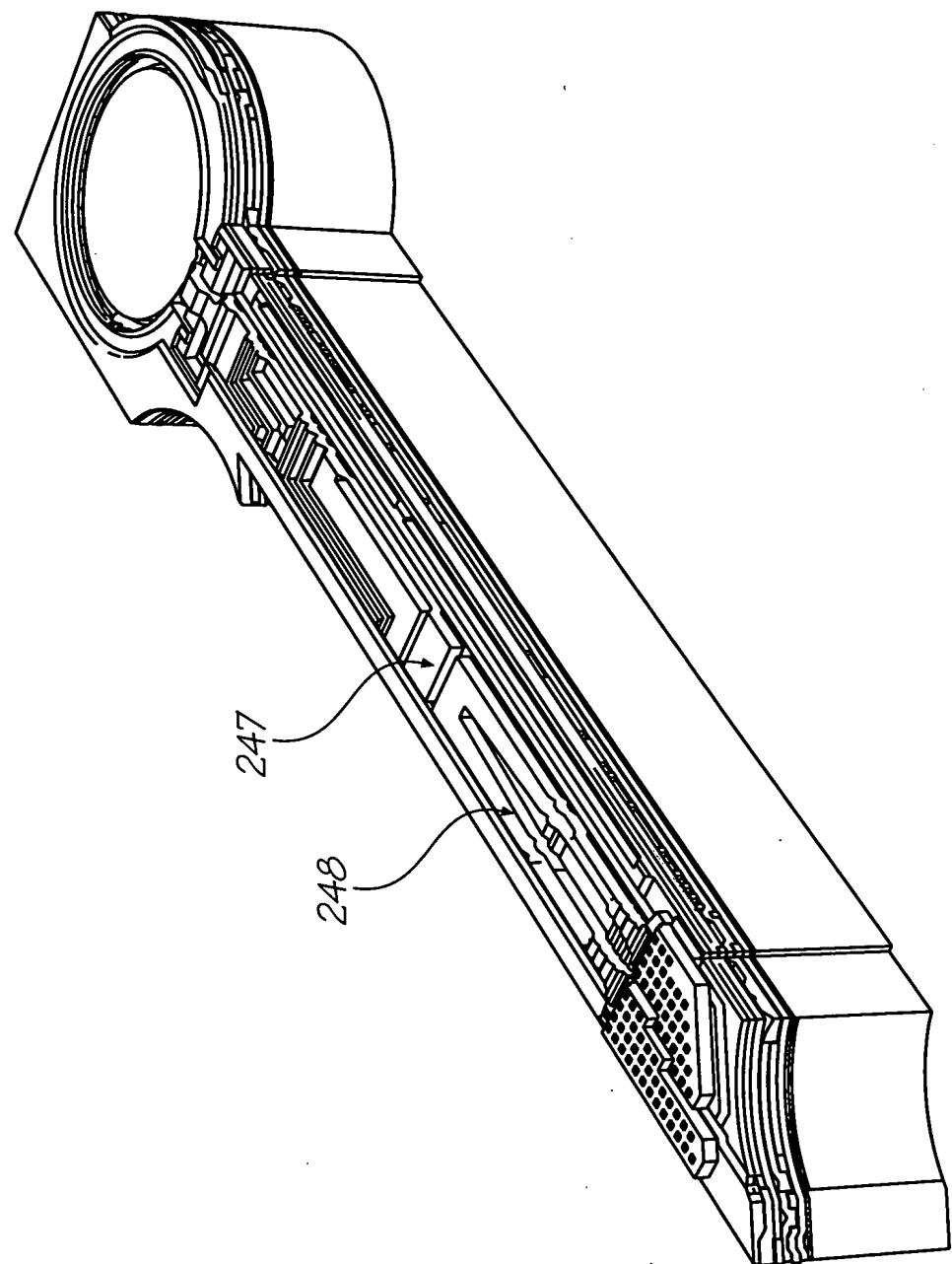


FIG. 55

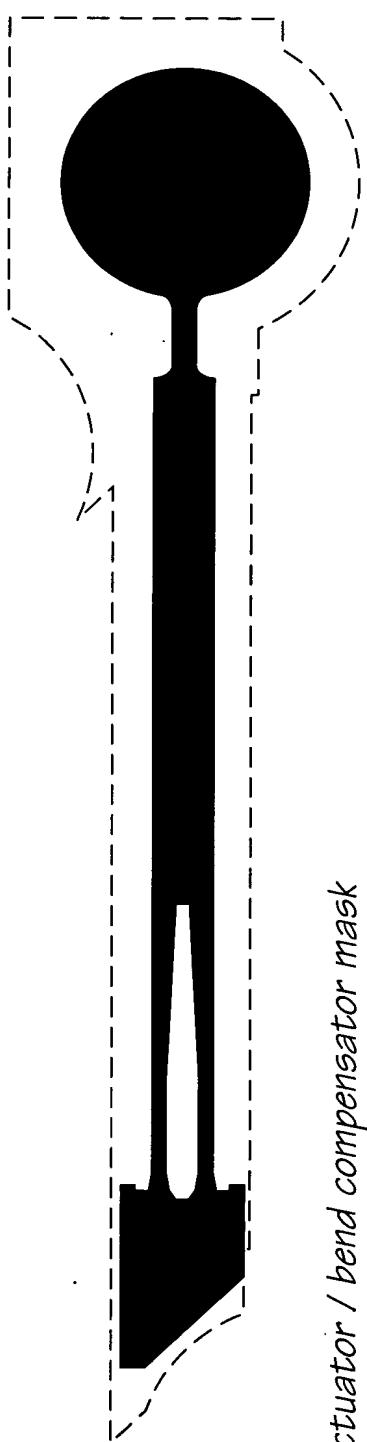
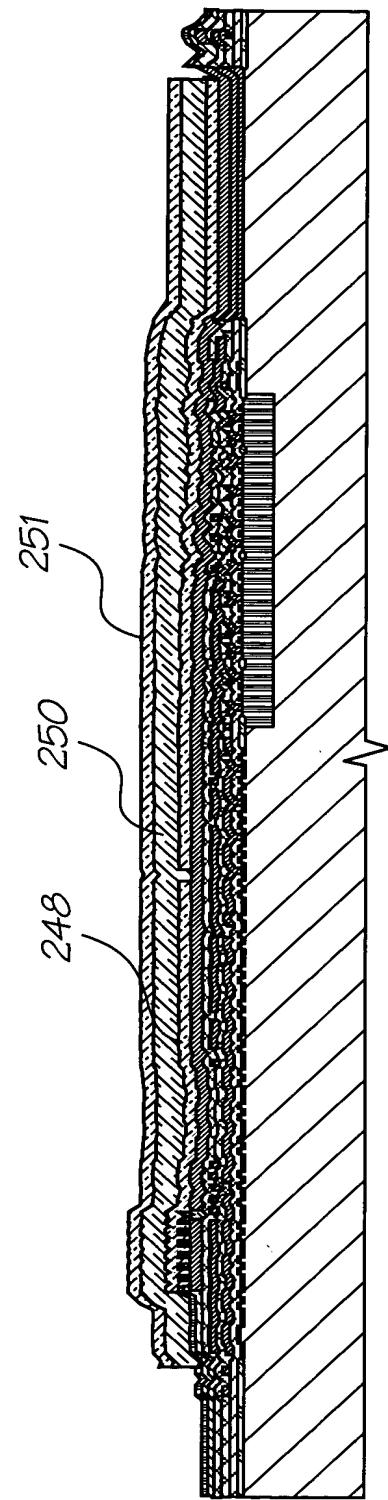


FIG. 56



Deposit actuator glass and bend compensator TiN, etch together

FIG. 57

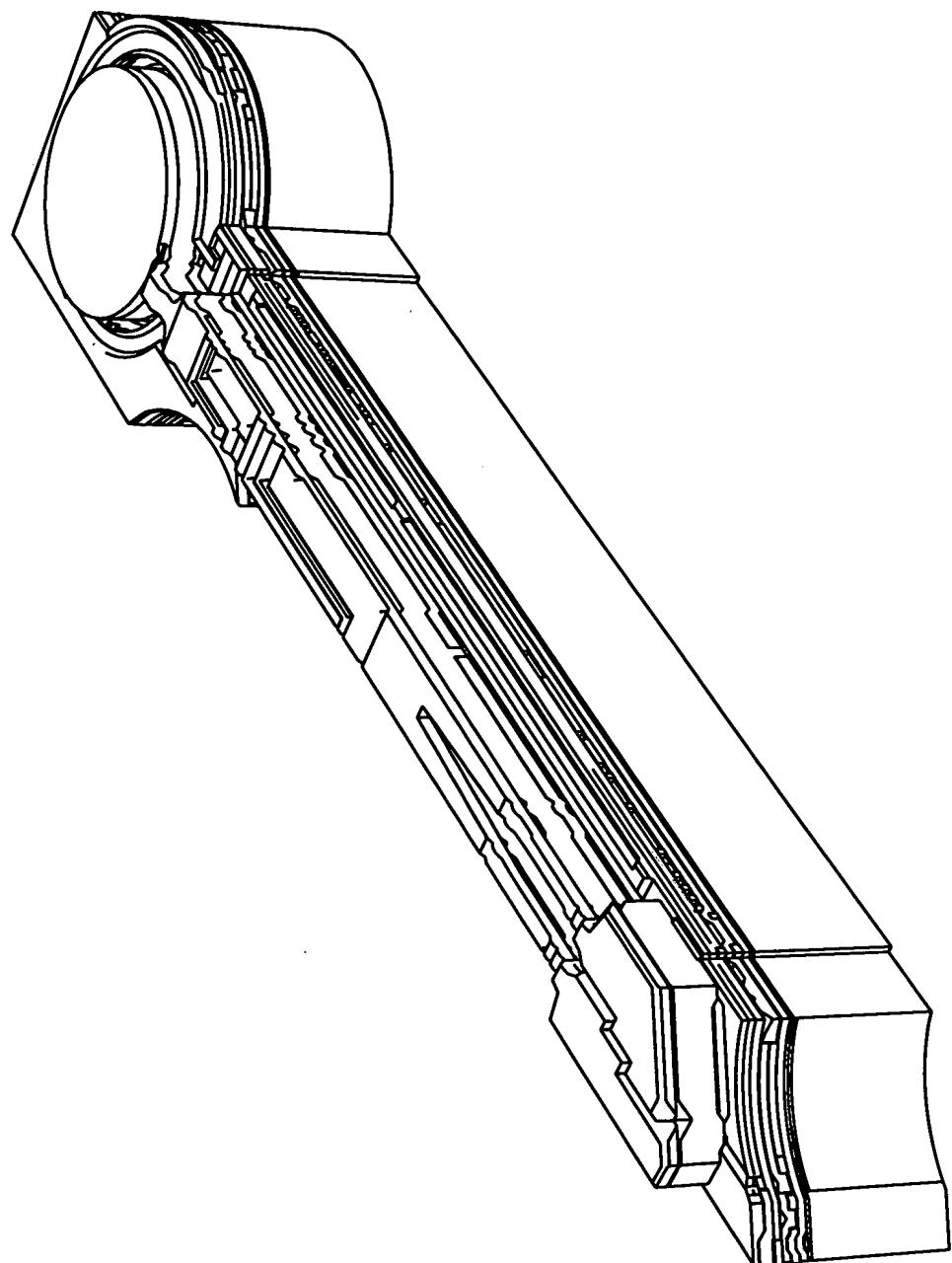


FIG. 58

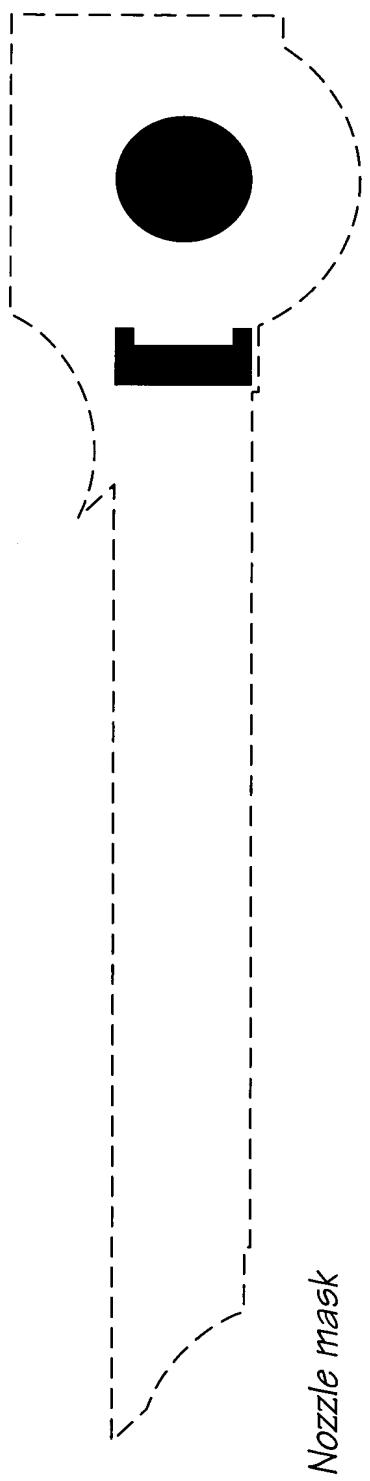


FIG. 59
Nozzle mask

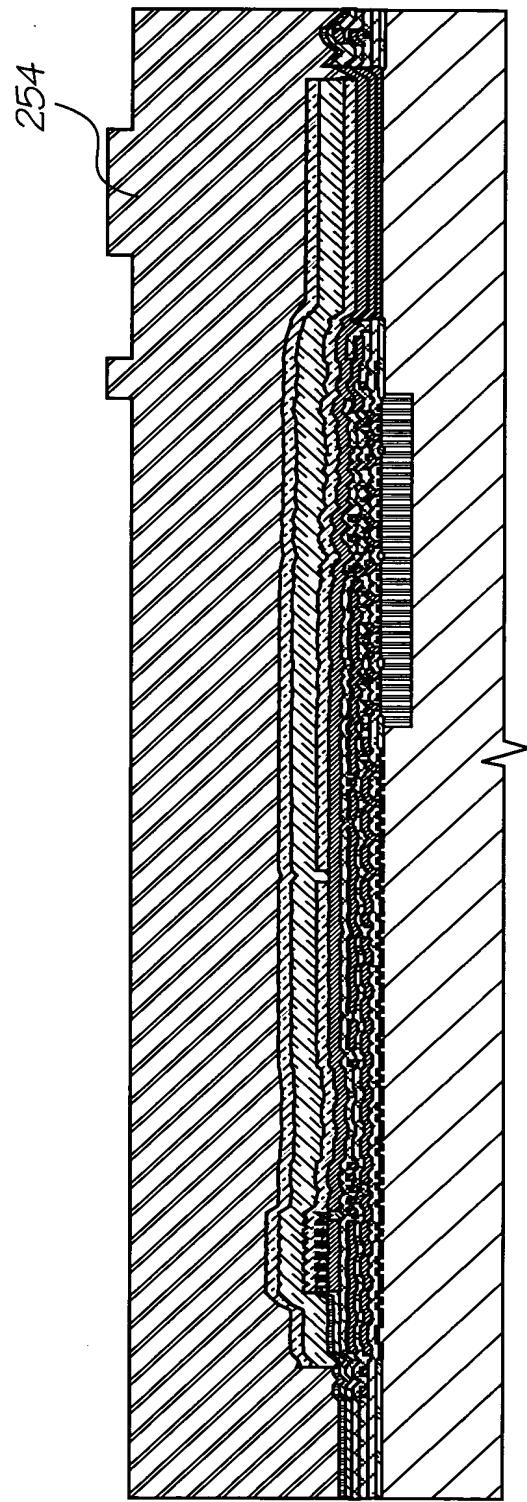


FIG. 60
Deposit sacrificial layer, etch nozzles

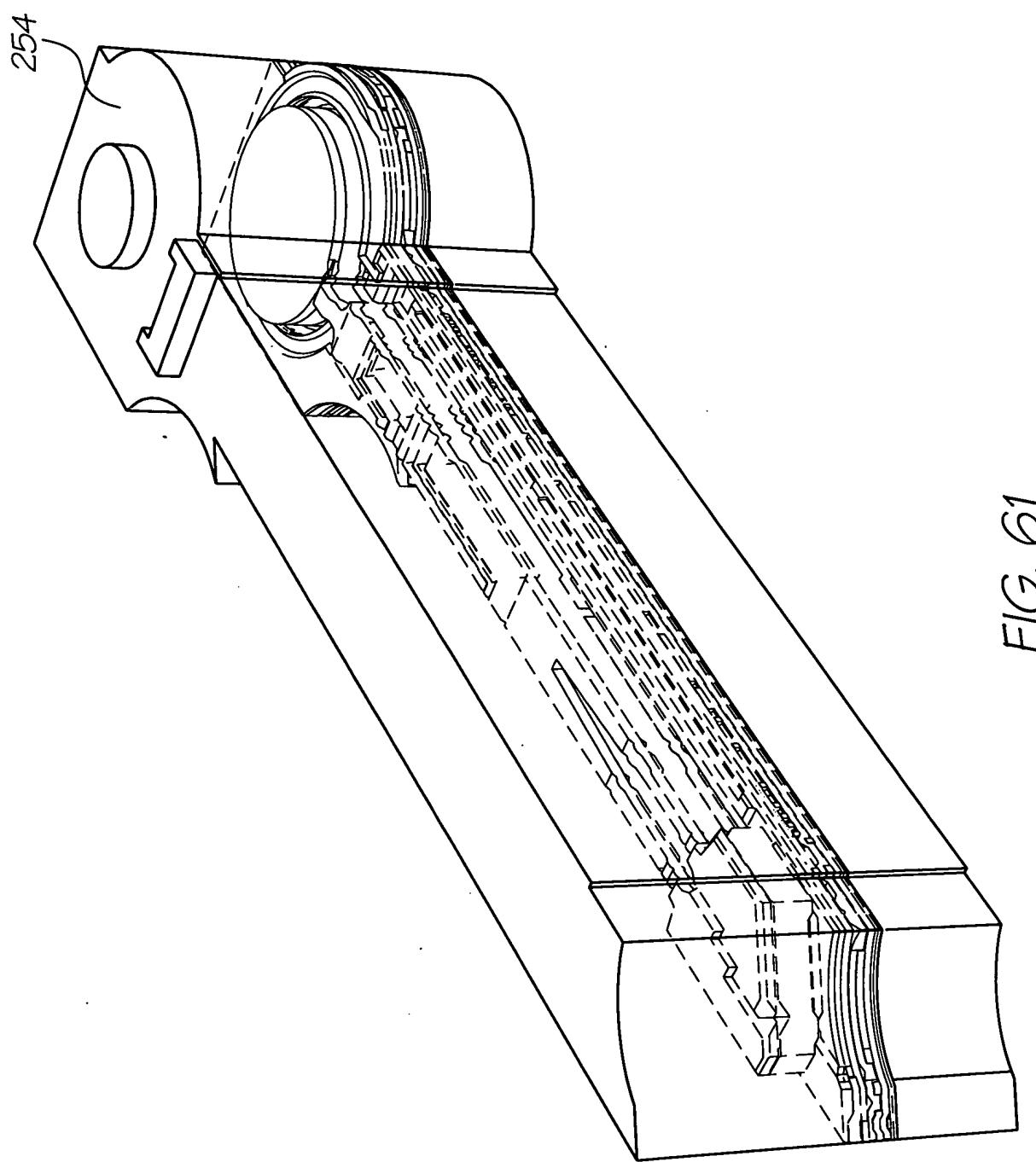
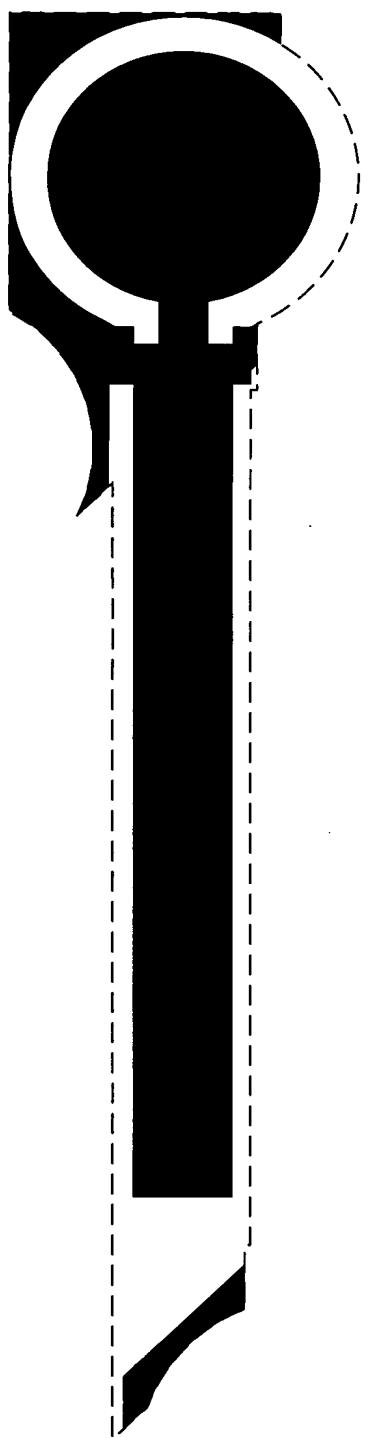
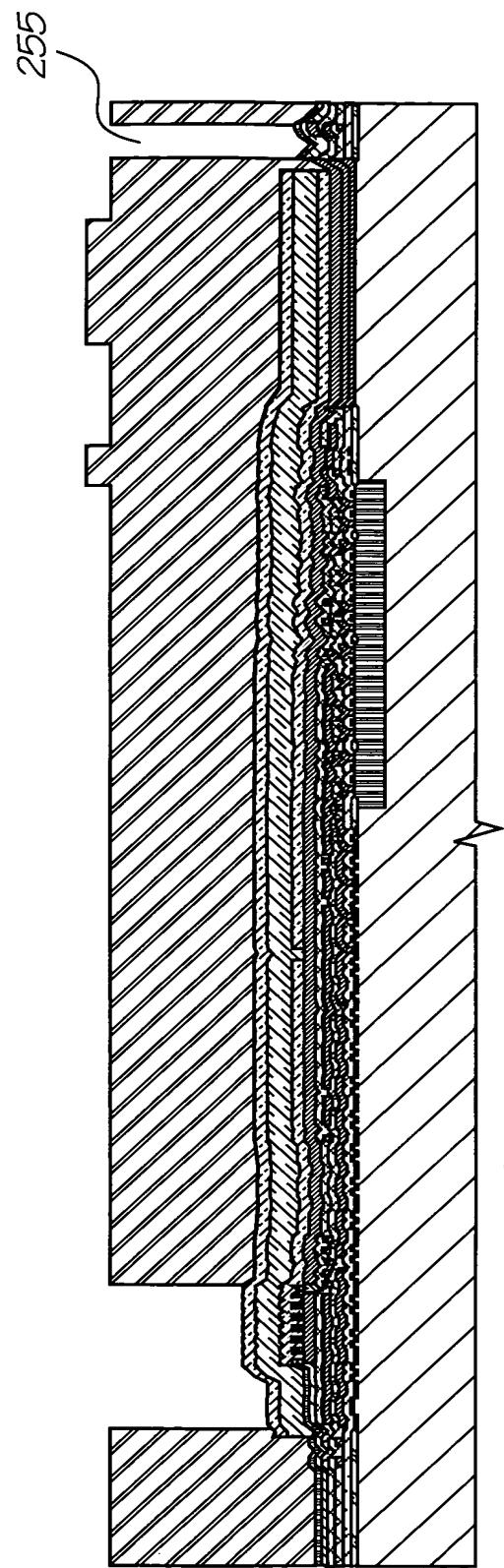


FIG. 61



Chamber mask

FIG. 62



Etch chambers in sacrificial layer

FIG. 63

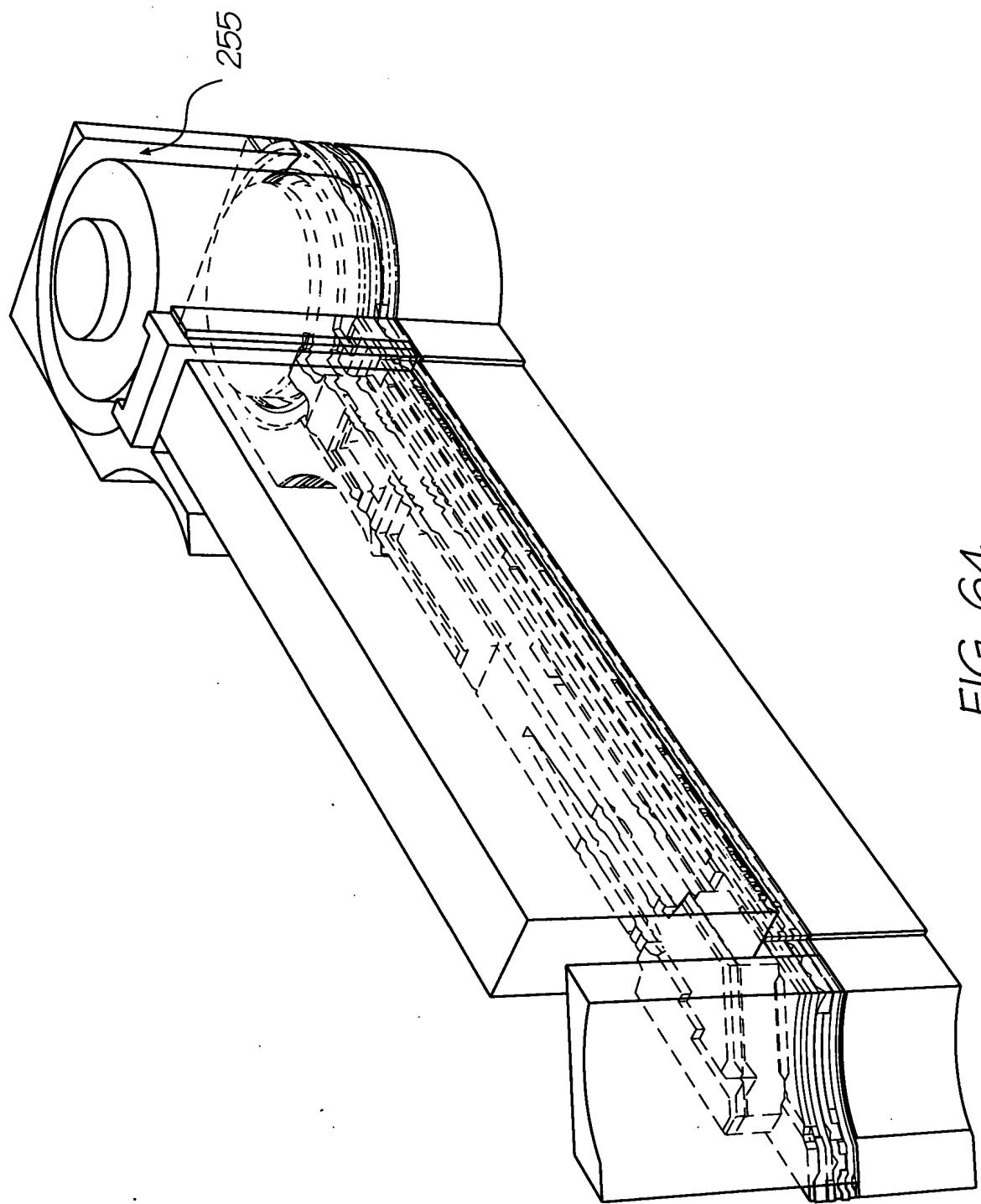


FIG. 64

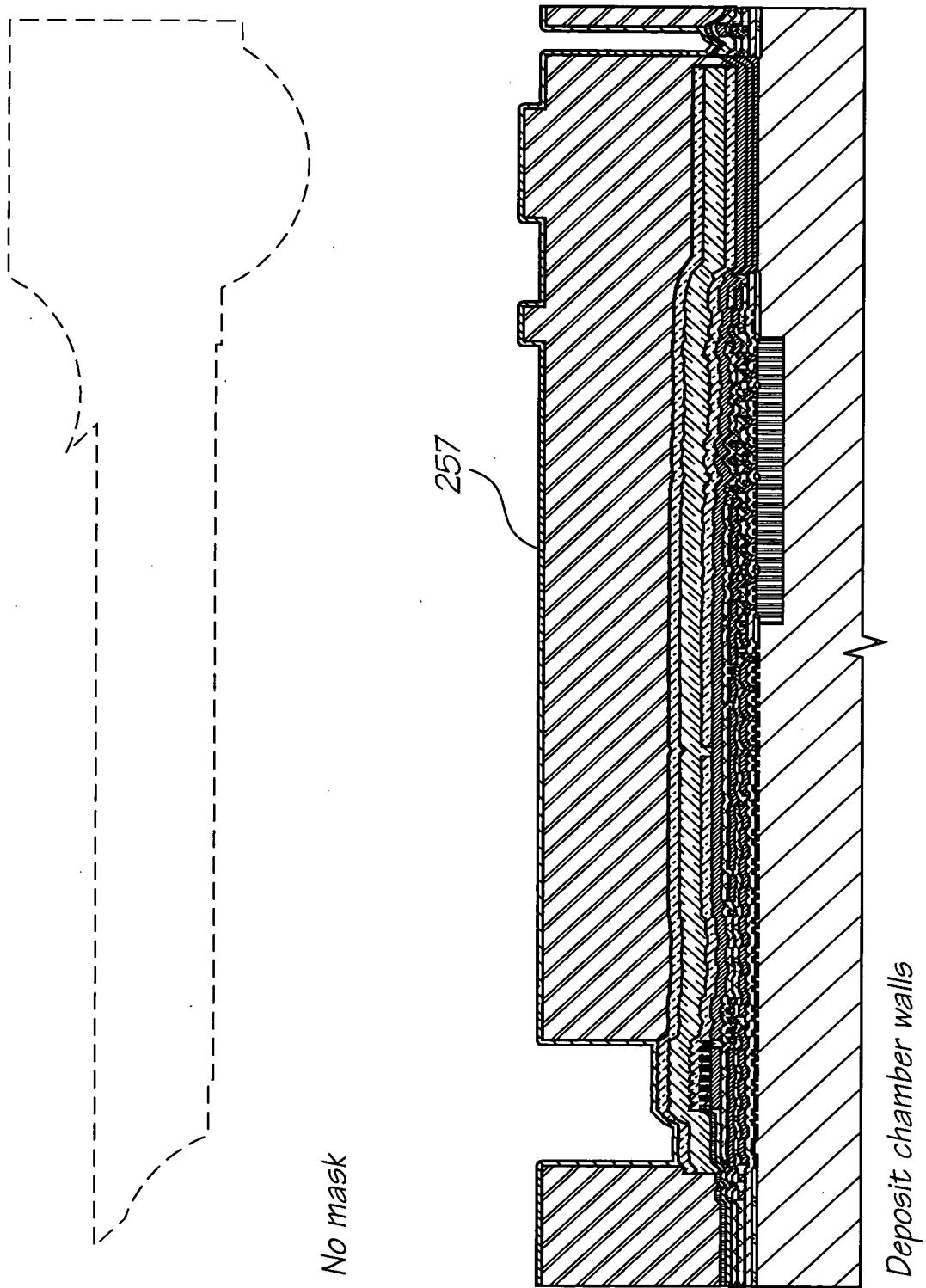
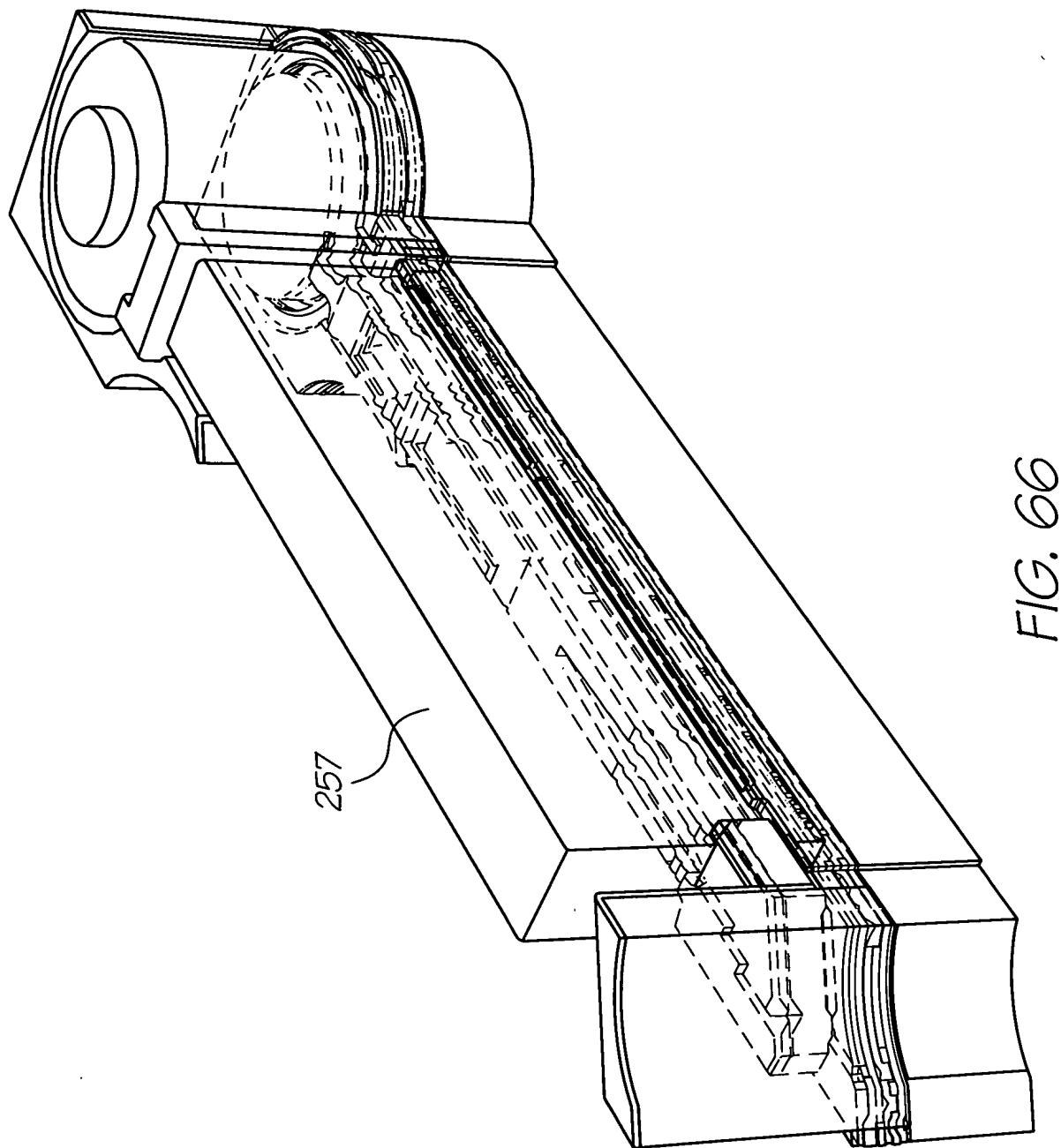


FIG. 65



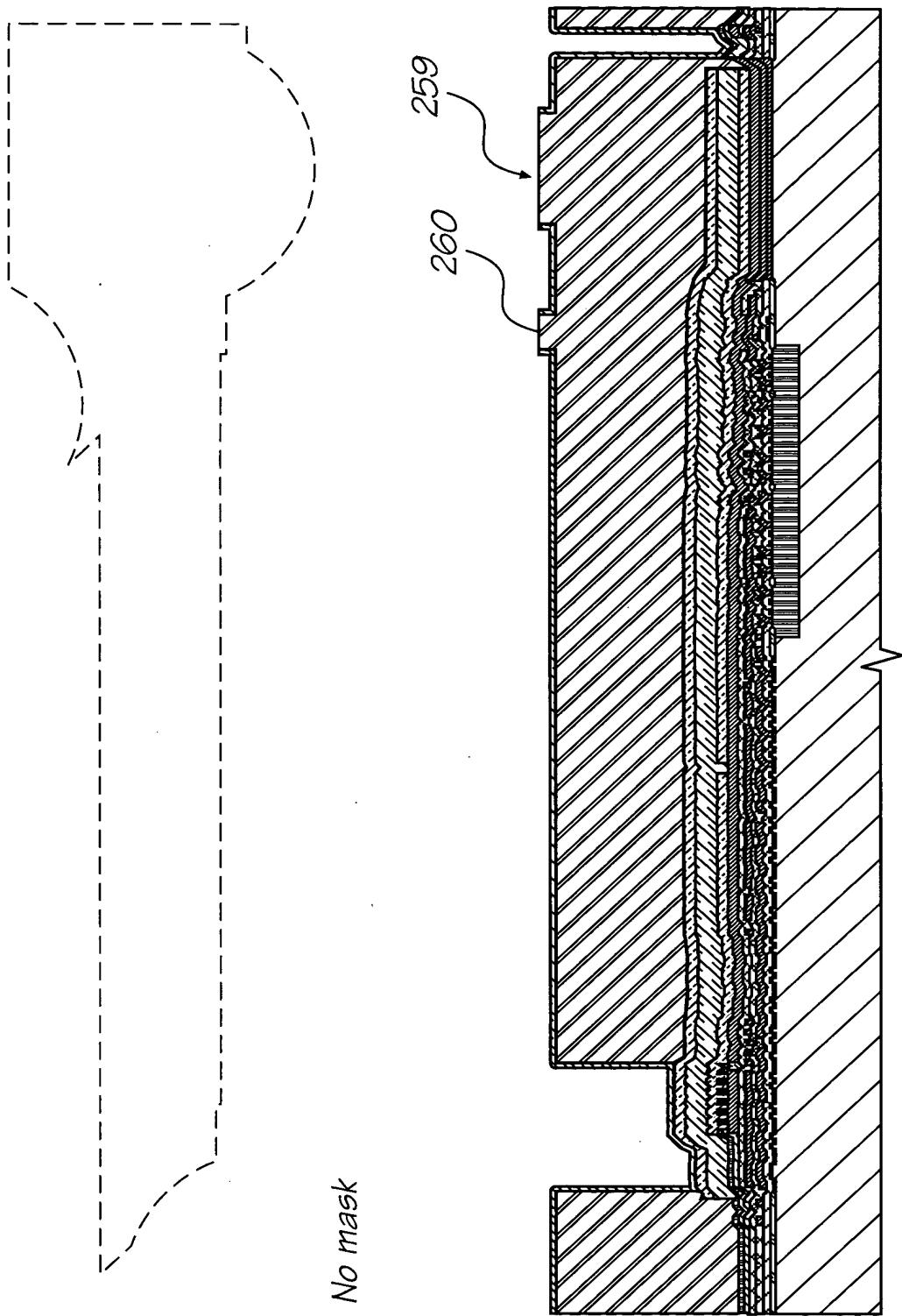


FIG. 67

Form self-aligned nozzles using CMP

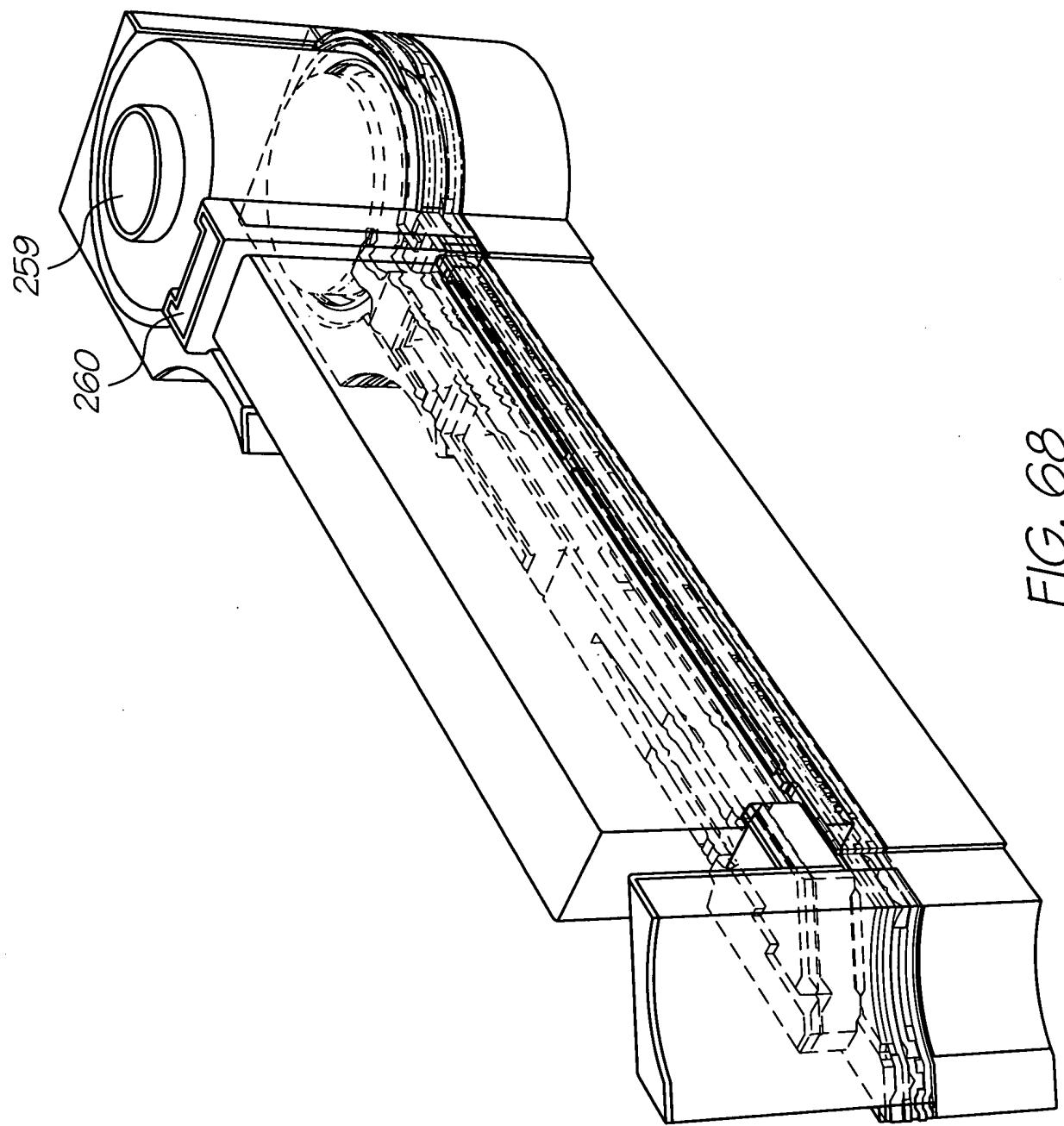
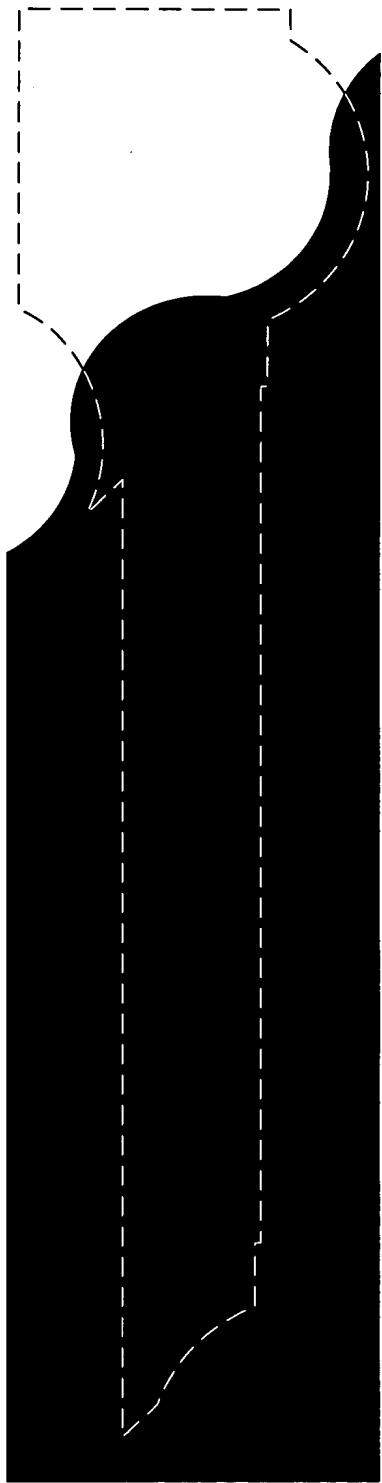
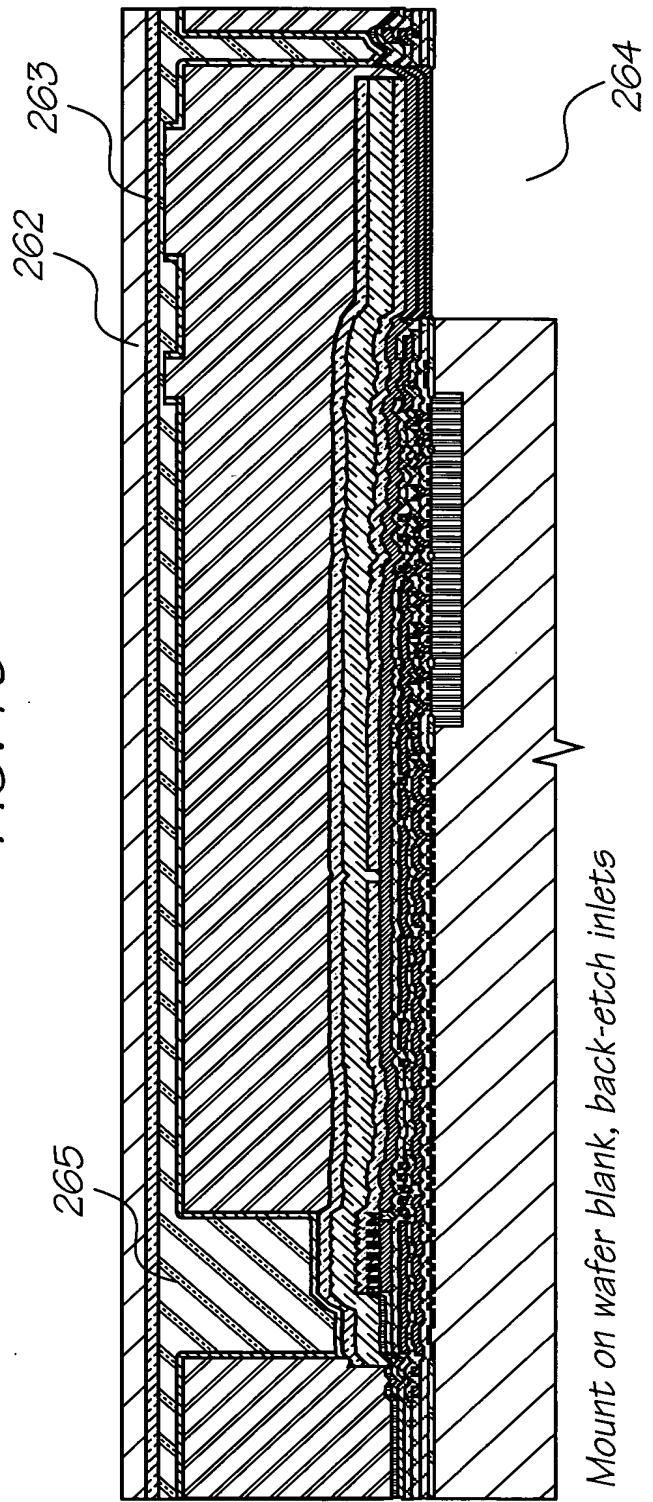


FIG. 68



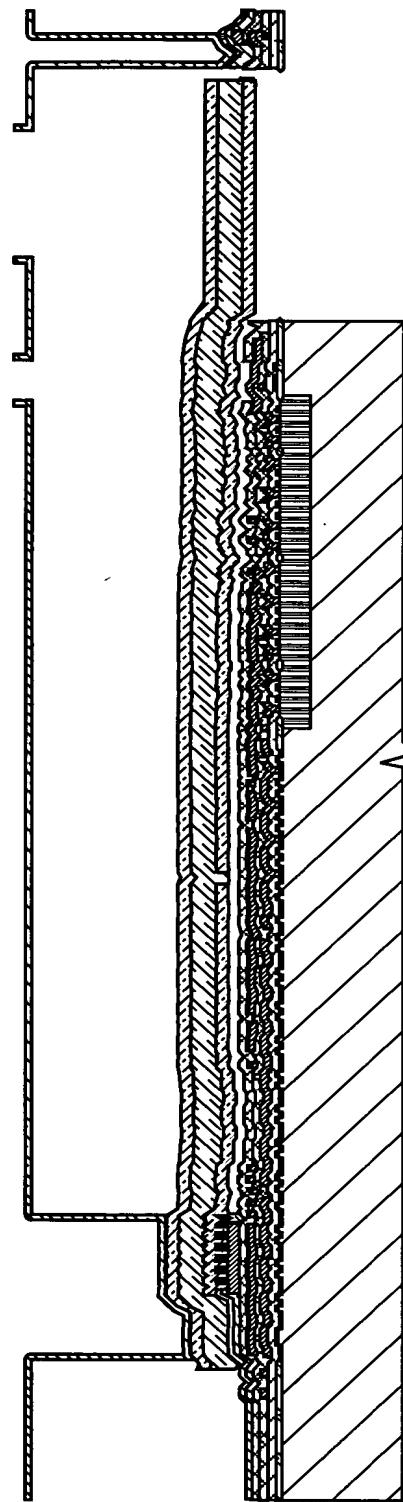
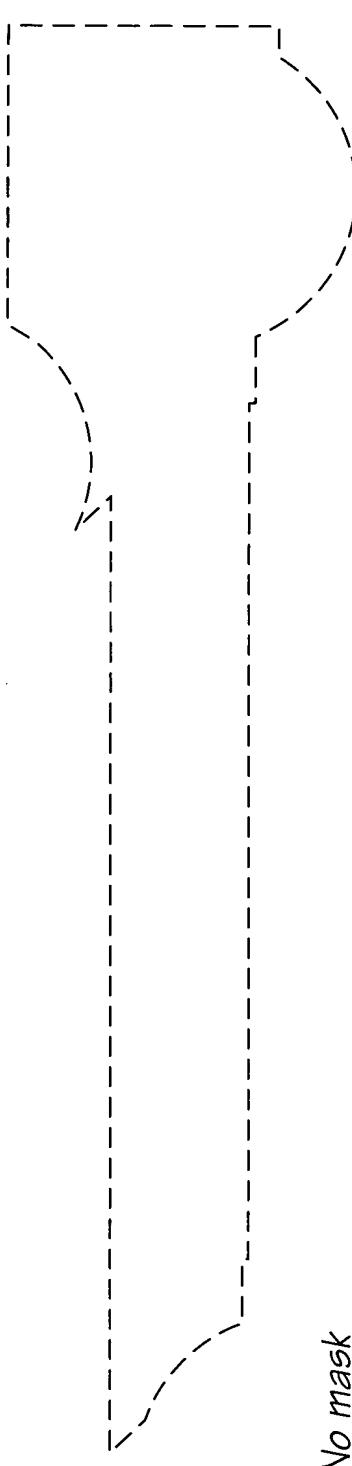
Back-etch inlet mask

FIG. 70



Mount on wafer blank, back-etch inlets

FIG. 69



Detach from wafer blank, etch sacrificial material

FIG. 71

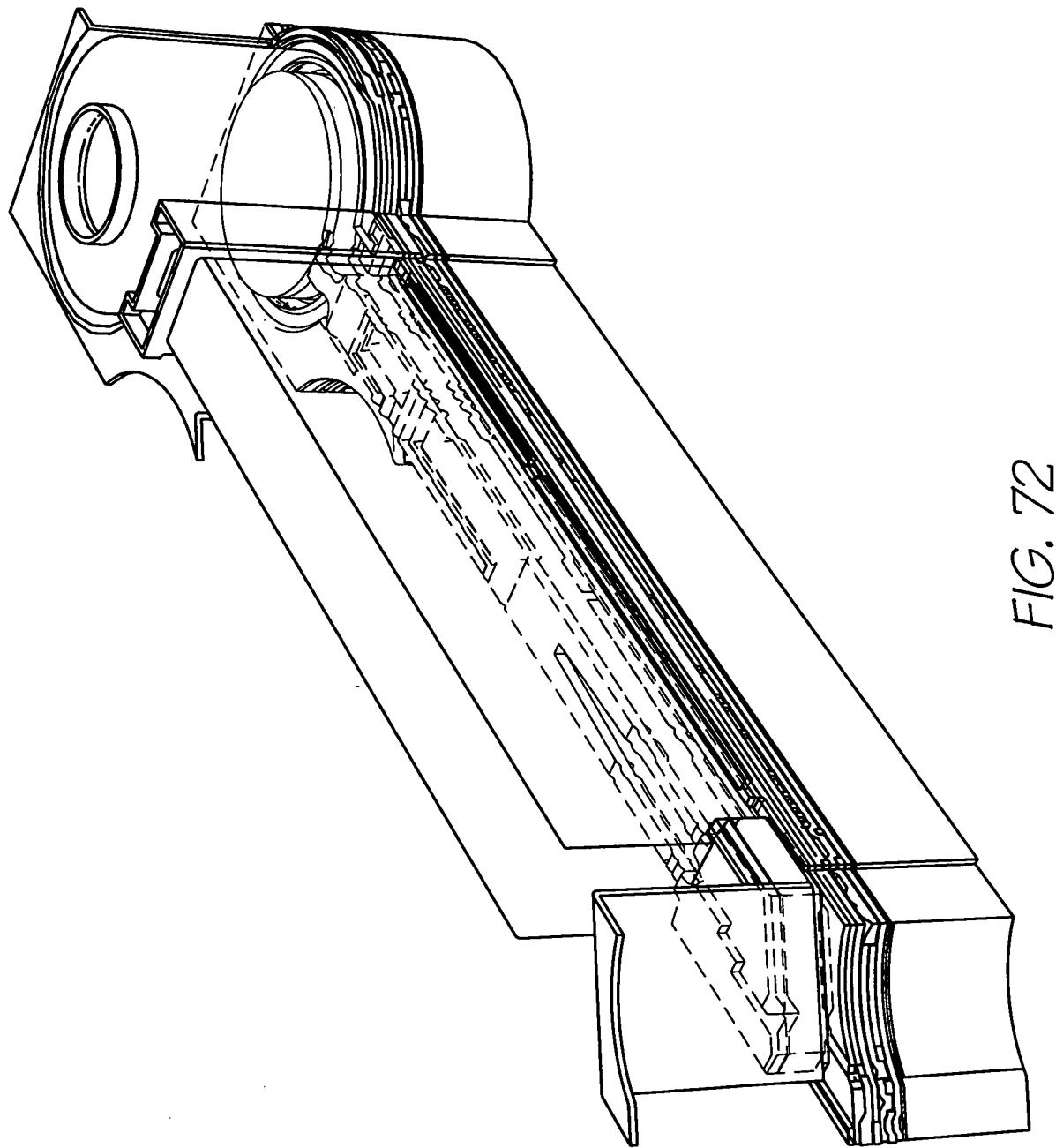


FIG. 72

48/76

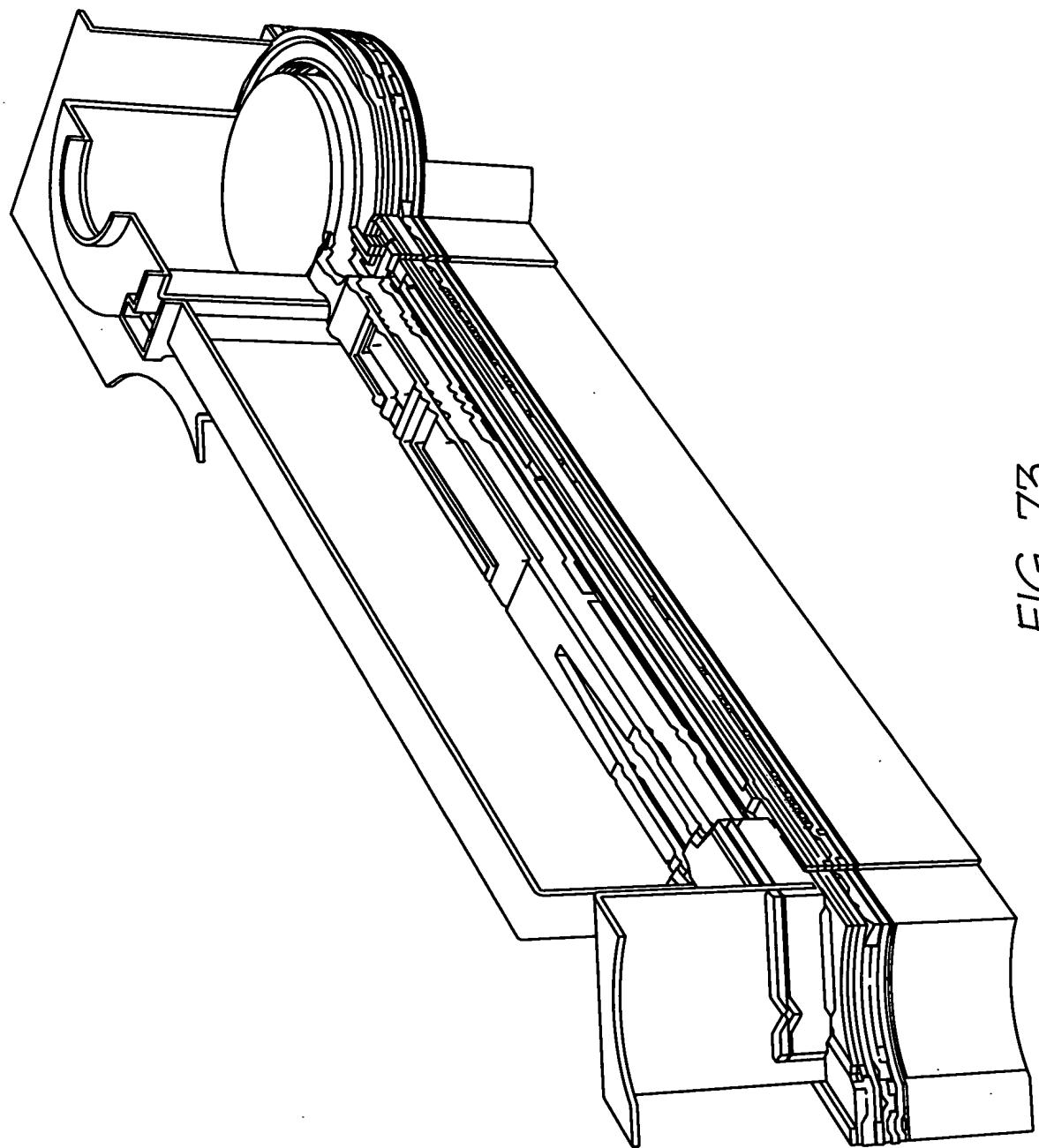


FIG. 7'3

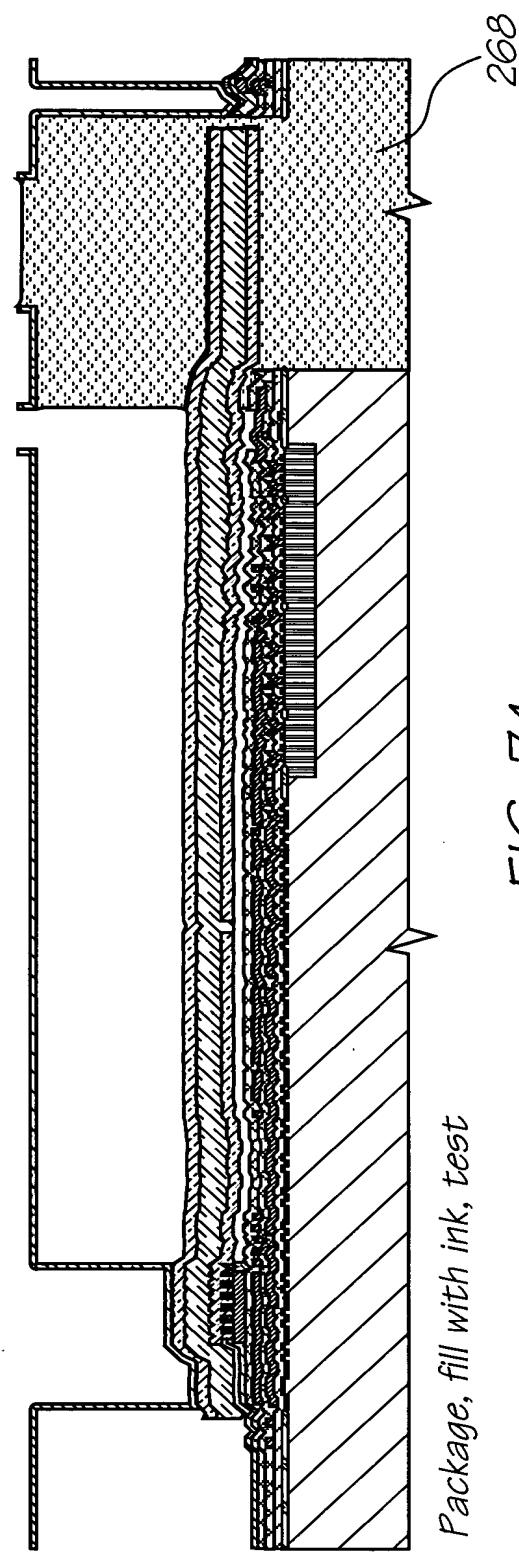
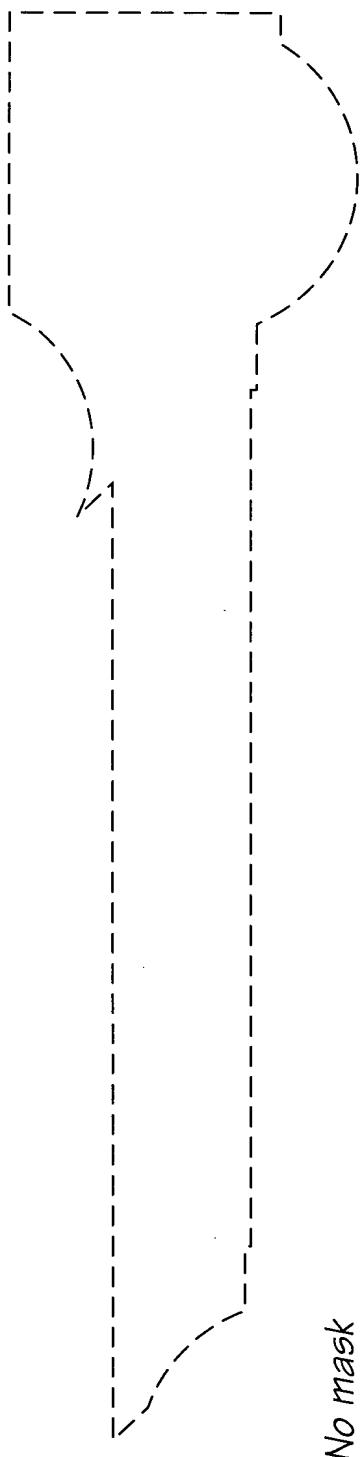


FIG. 74

Package, fill with ink, test

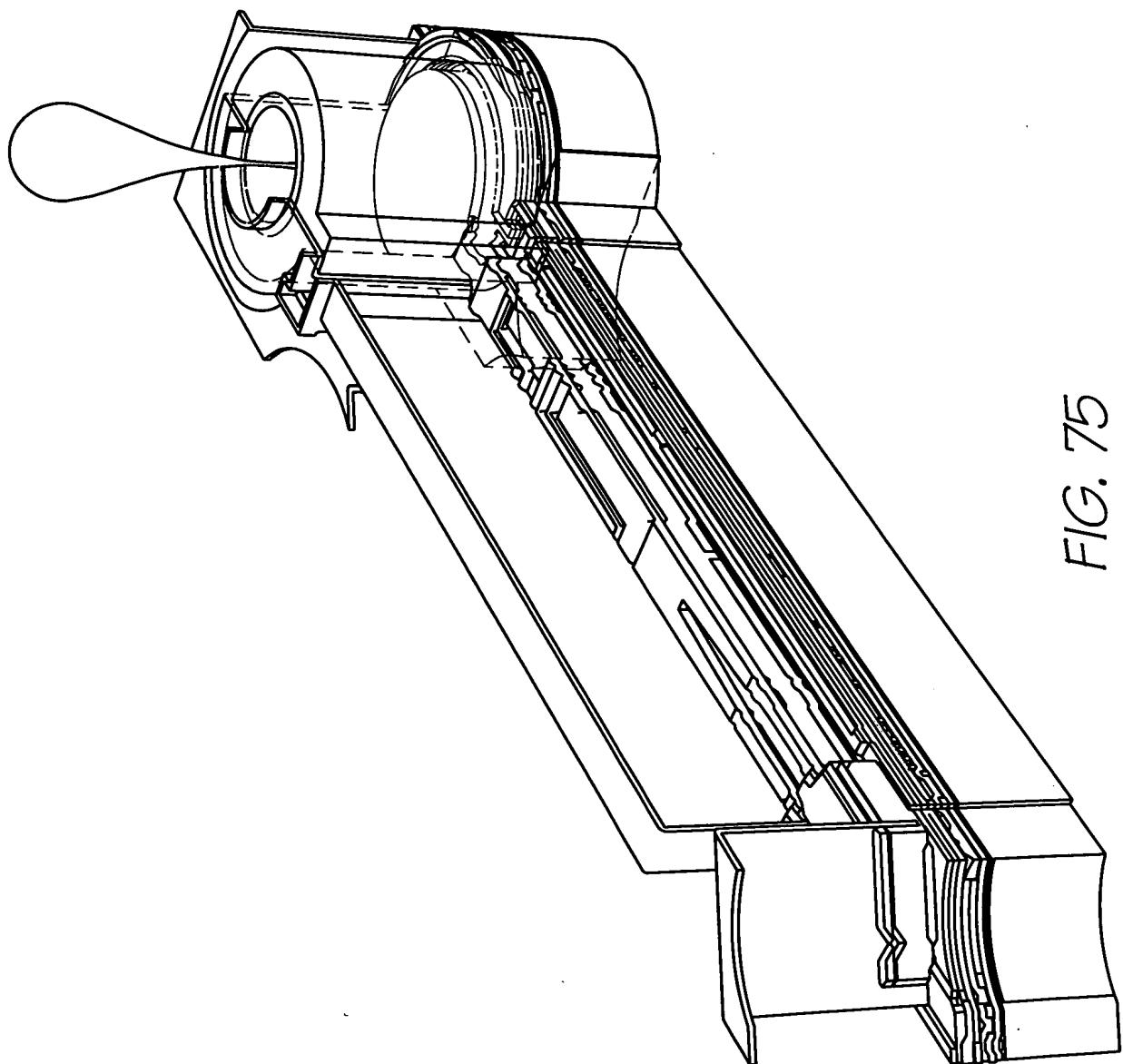


FIG. 75

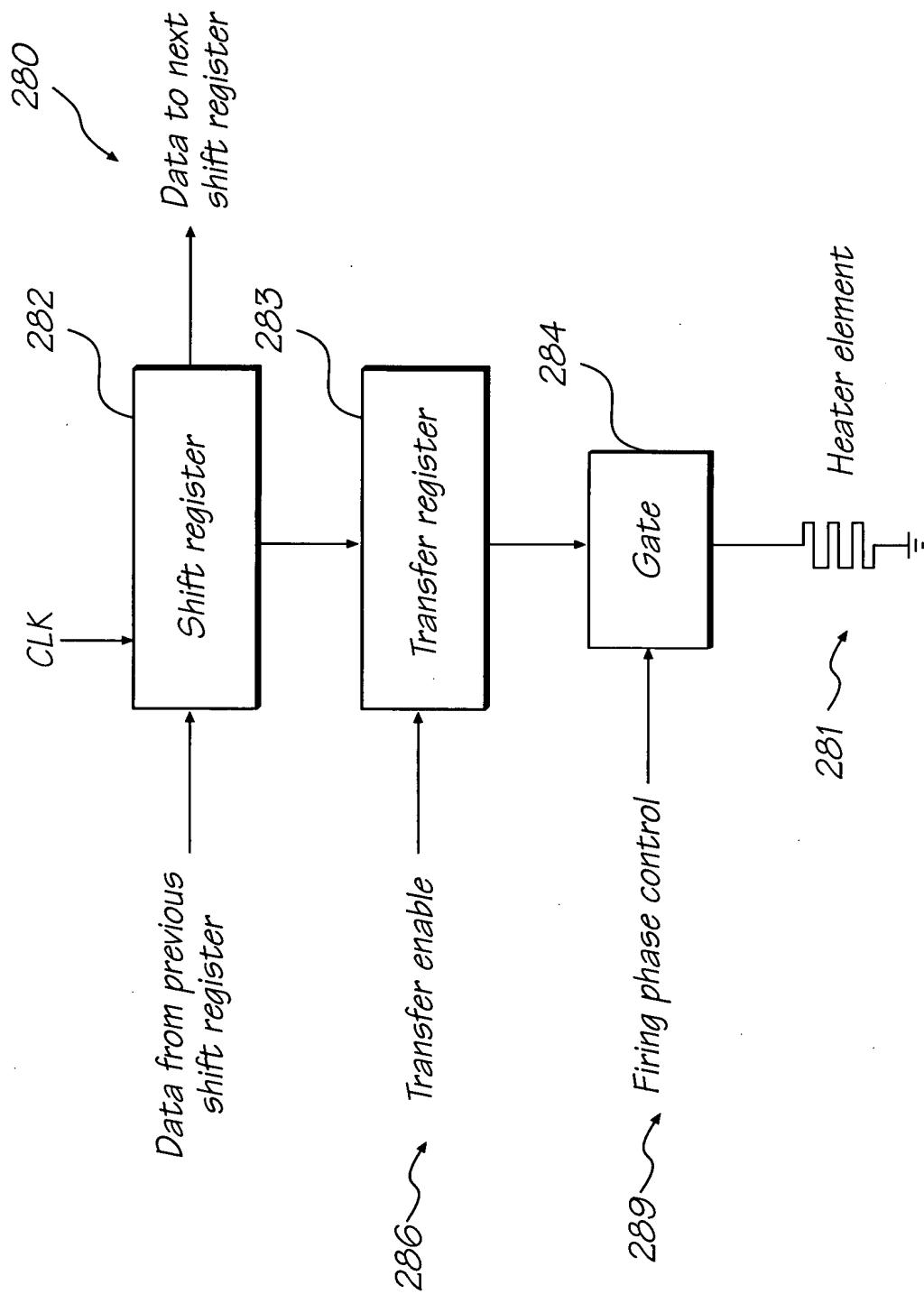


FIG. 76

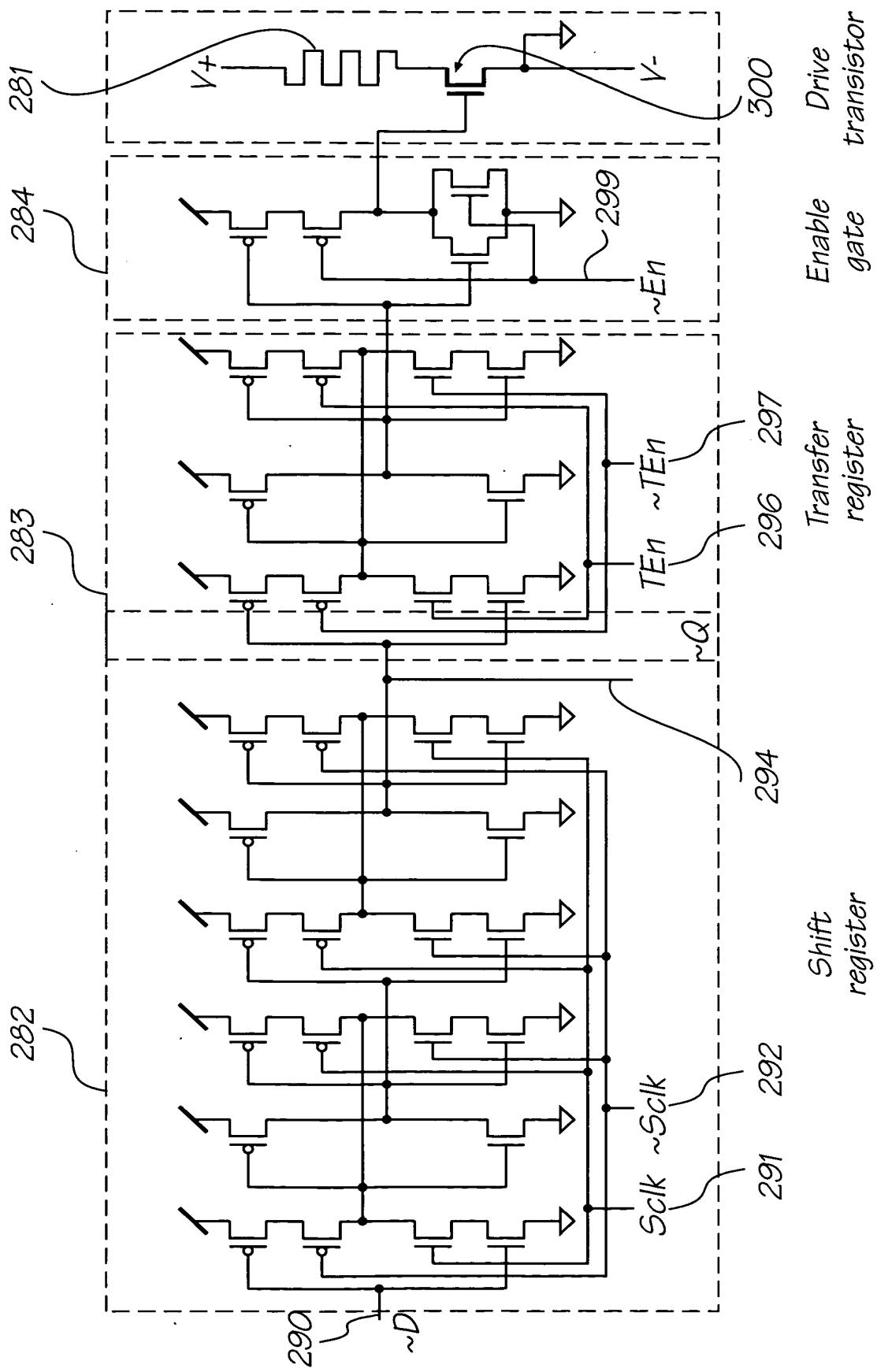


FIG. 77

Key

	Silicon		Poly		Via 2		Actuator TiN		Cyan Ink
	Contacts		Metal 3		Actuator Glass		Magenta Ink		
	Active		Metal 1		Via 3		Compensator TiN		Yellow Ink
	p+		Via 1		Sacrificial				
	n+		Metal 2		Sacrificial-nozzle		Floor		Wall
							Root		Rim
									Shroud

FIG. 78

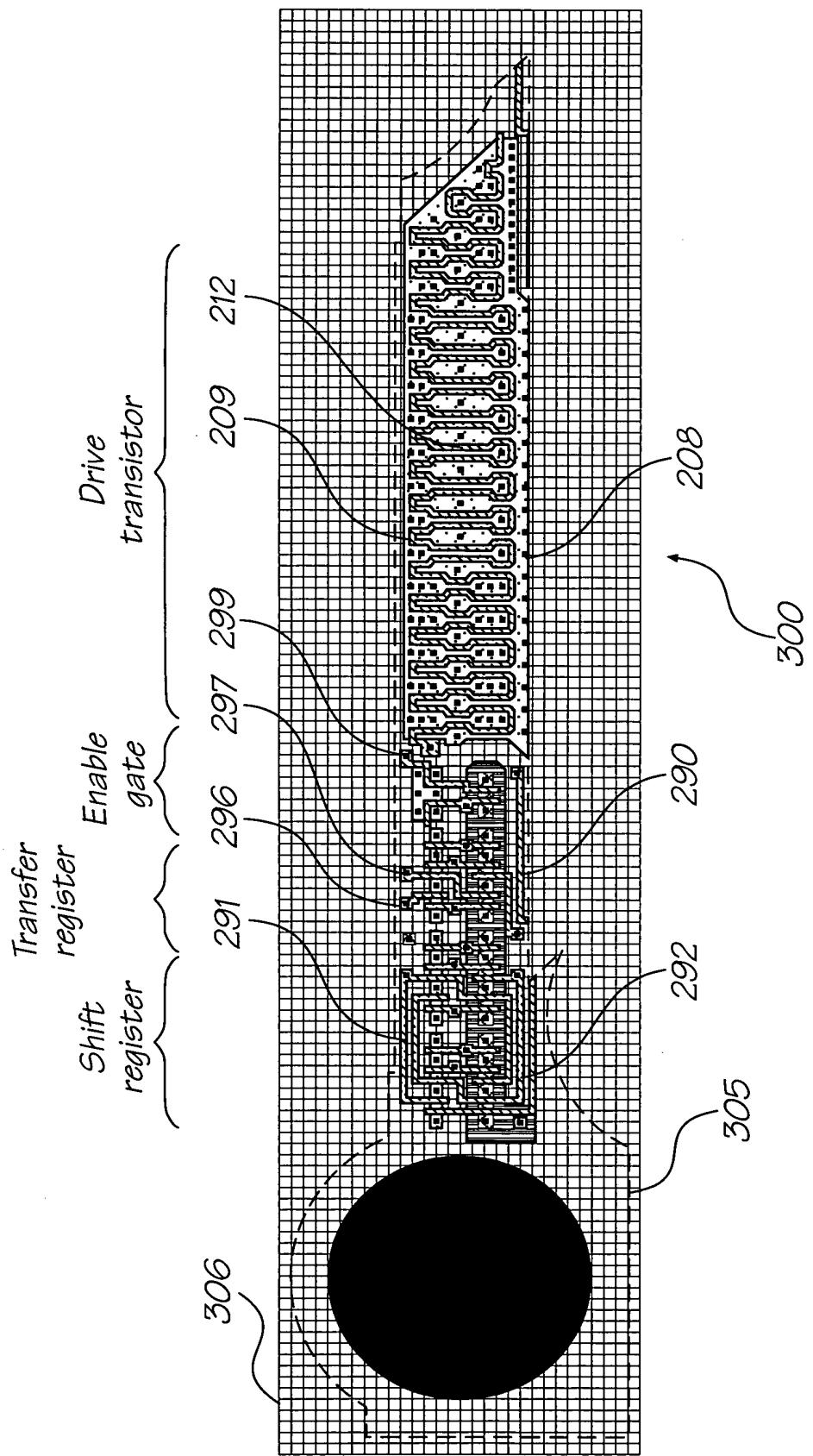


FIG. 79

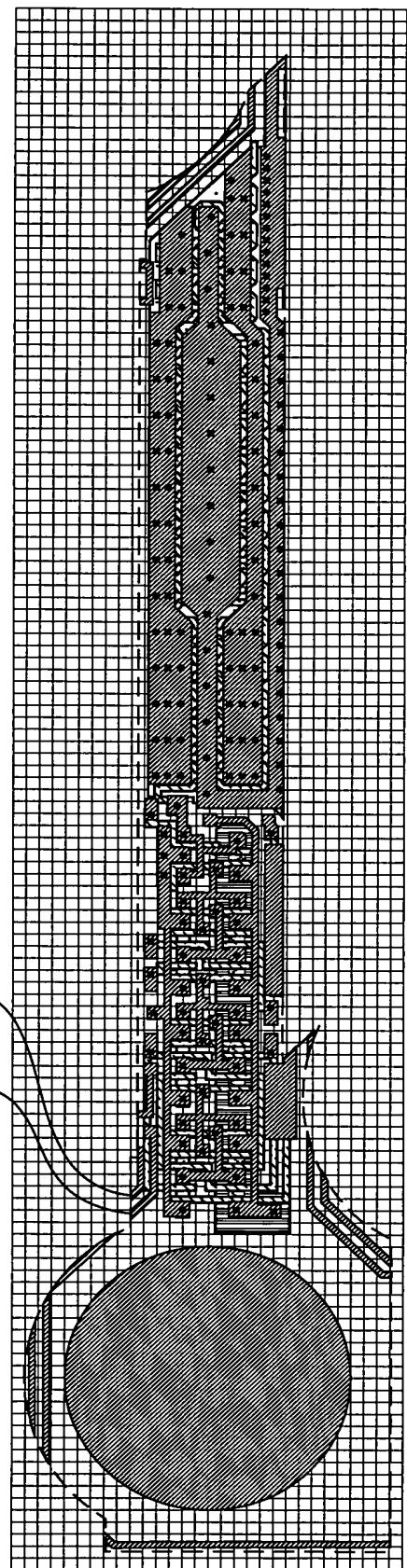


FIG. 80

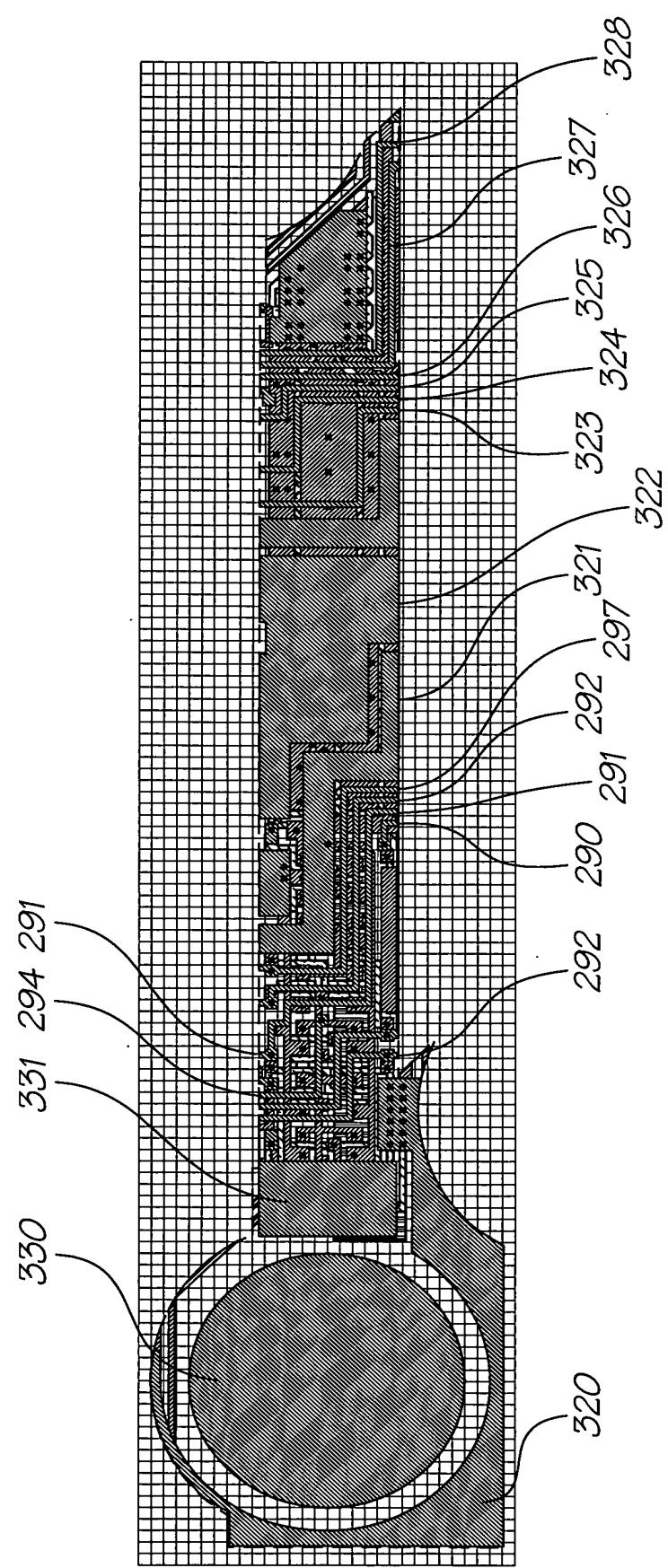


FIG. 81

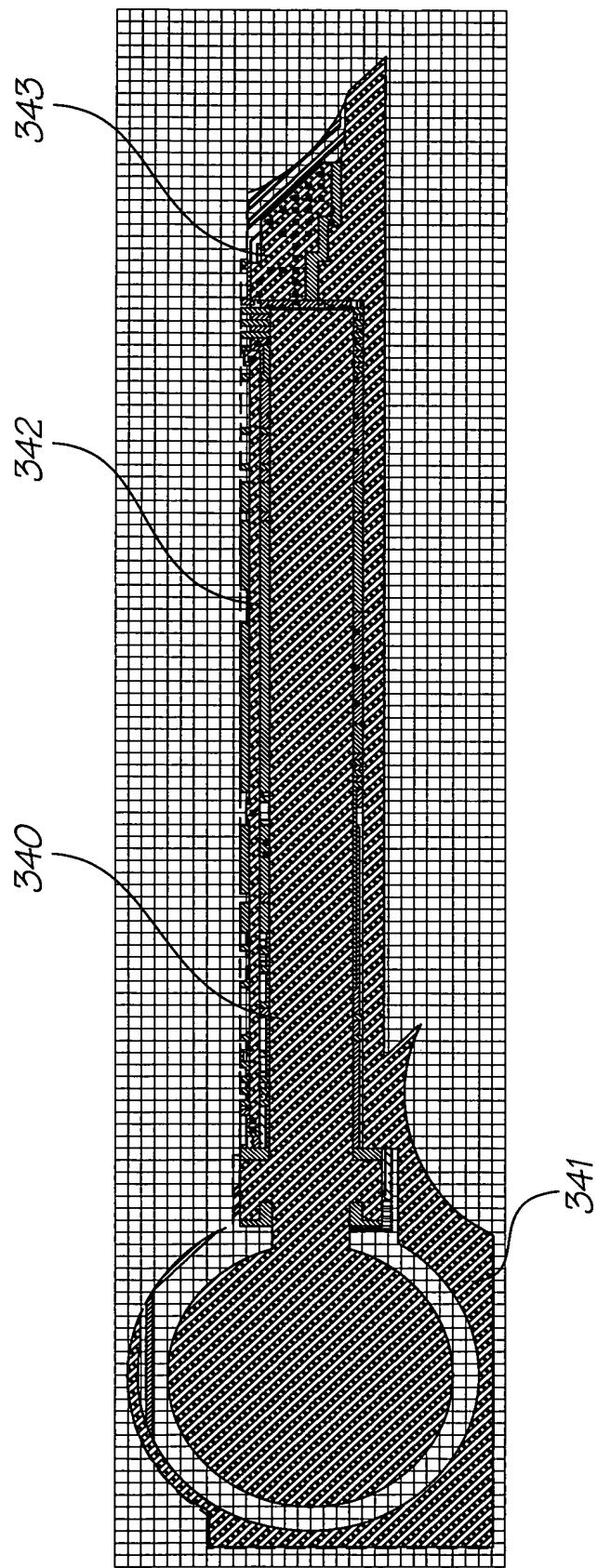


FIG. 82

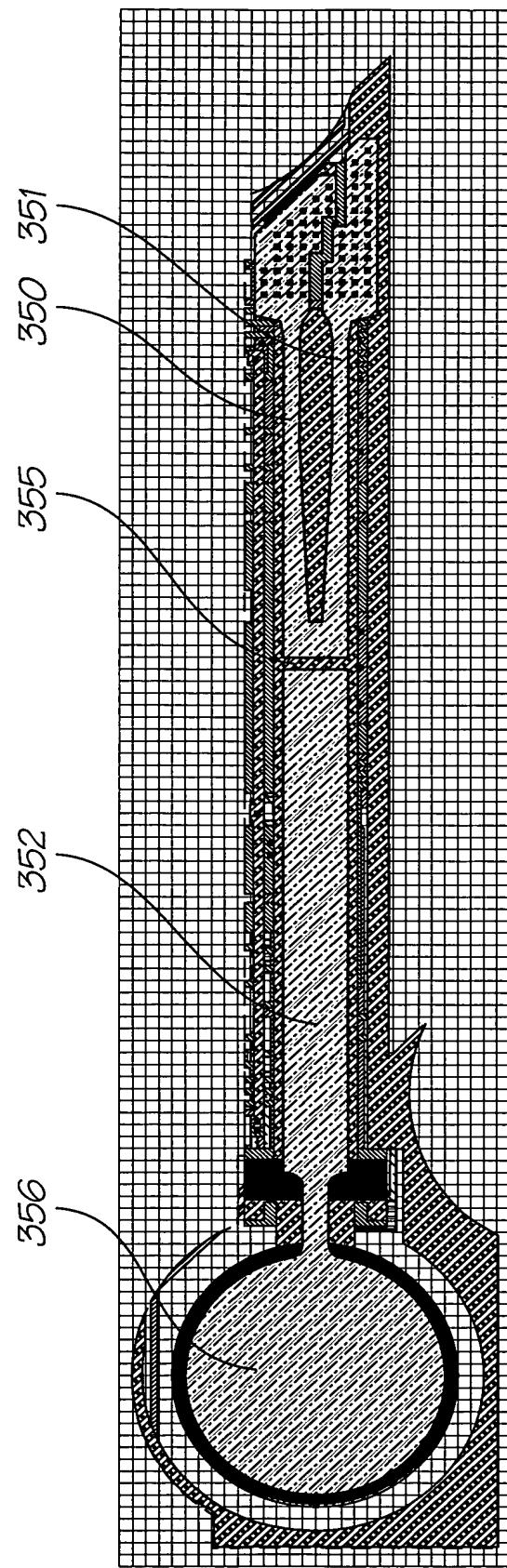


FIG. 83

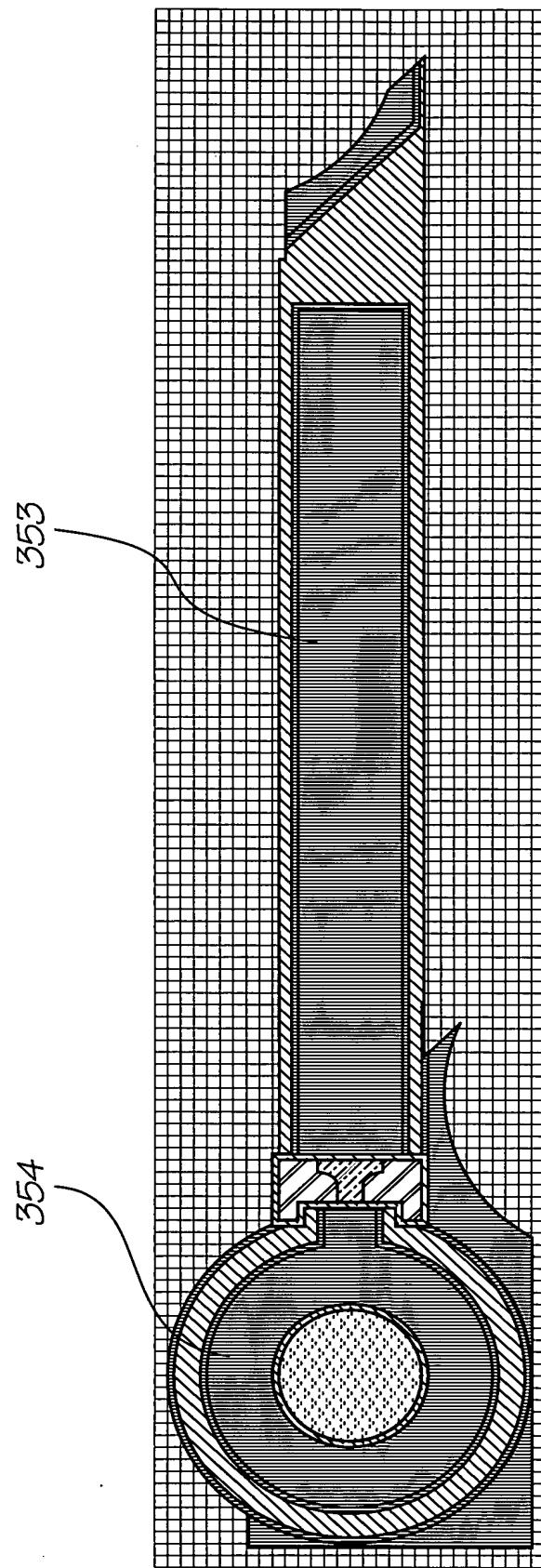


FIG. 84

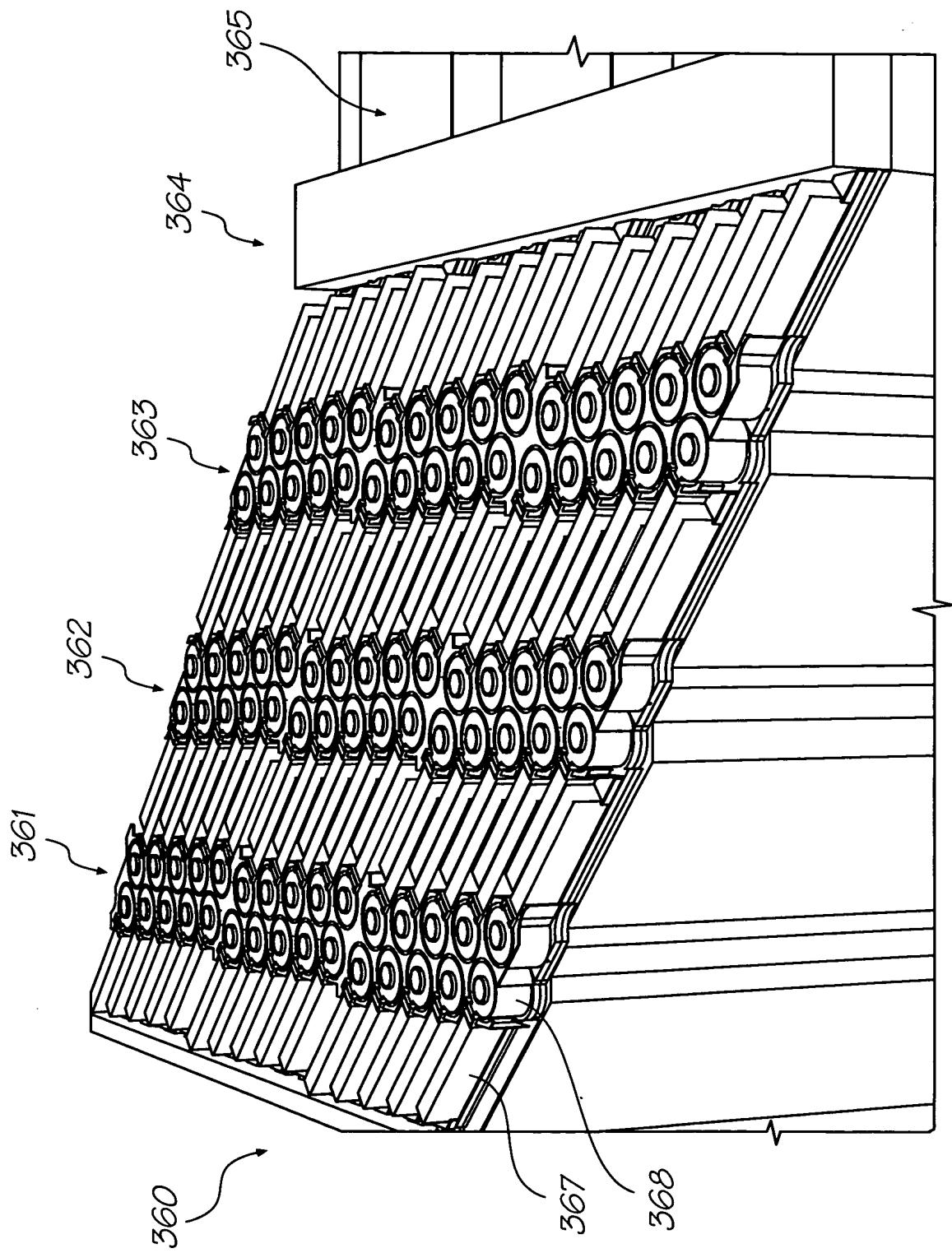


FIG. 85

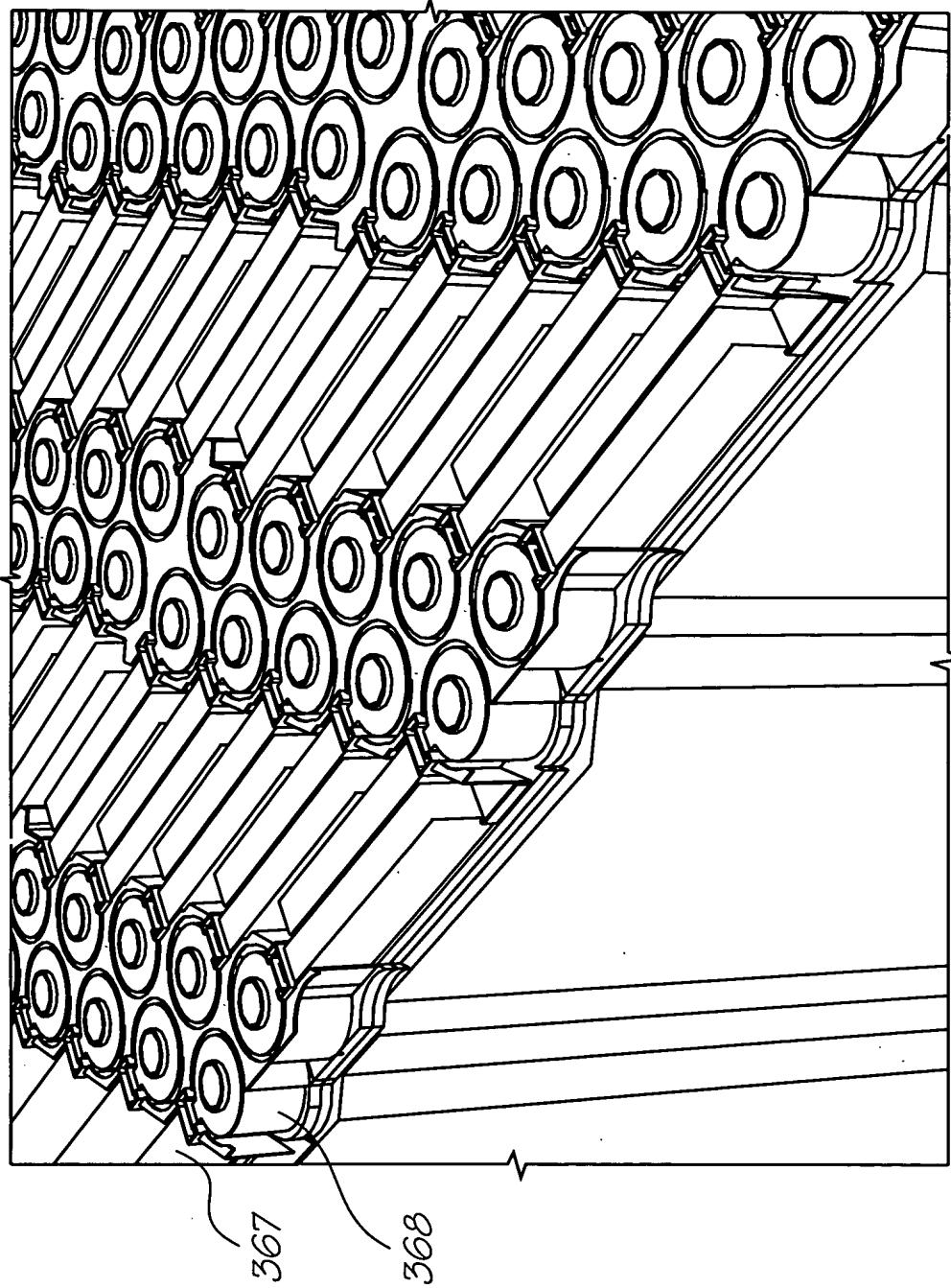


FIG. 86

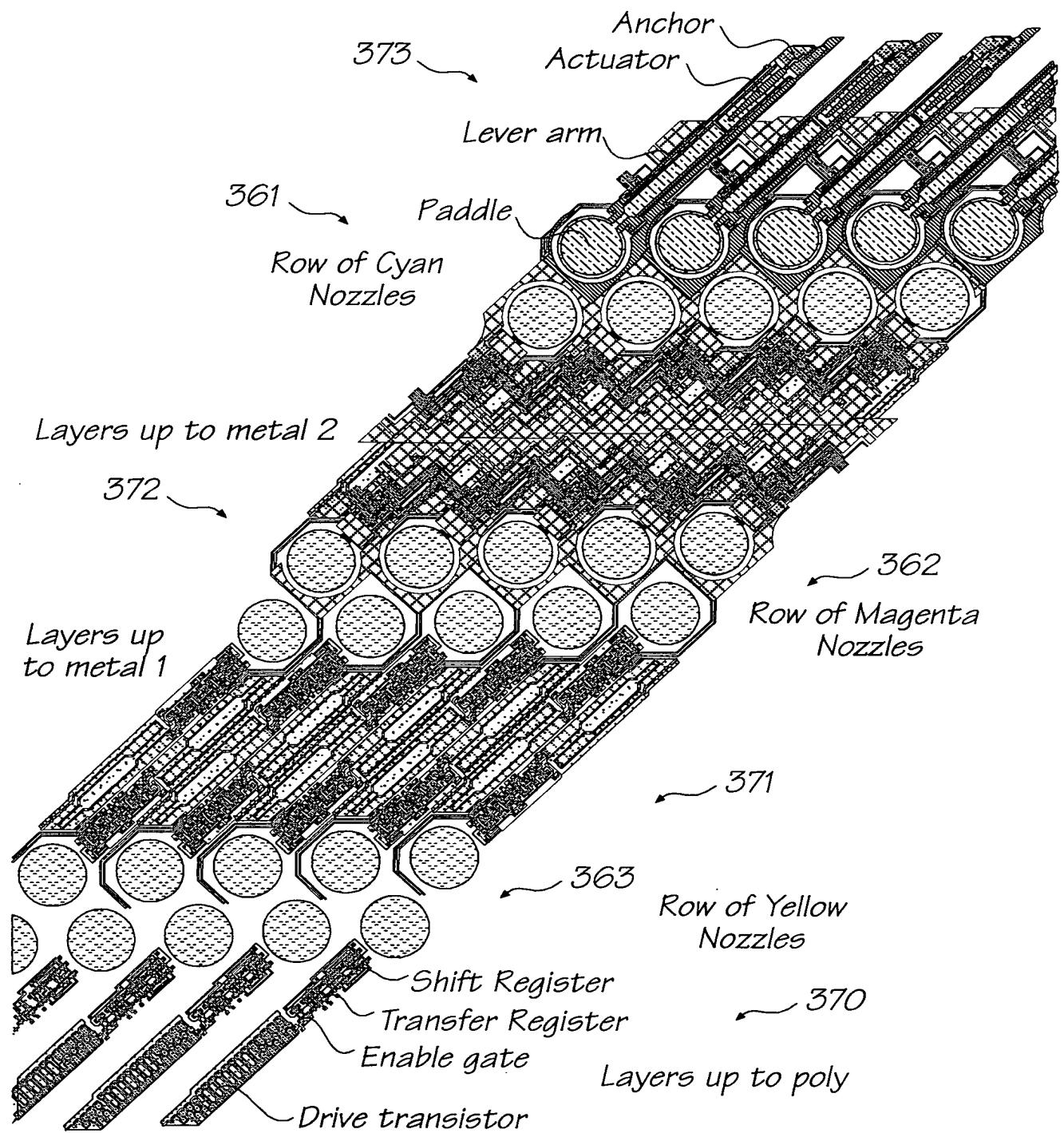


FIG. 87

63/76

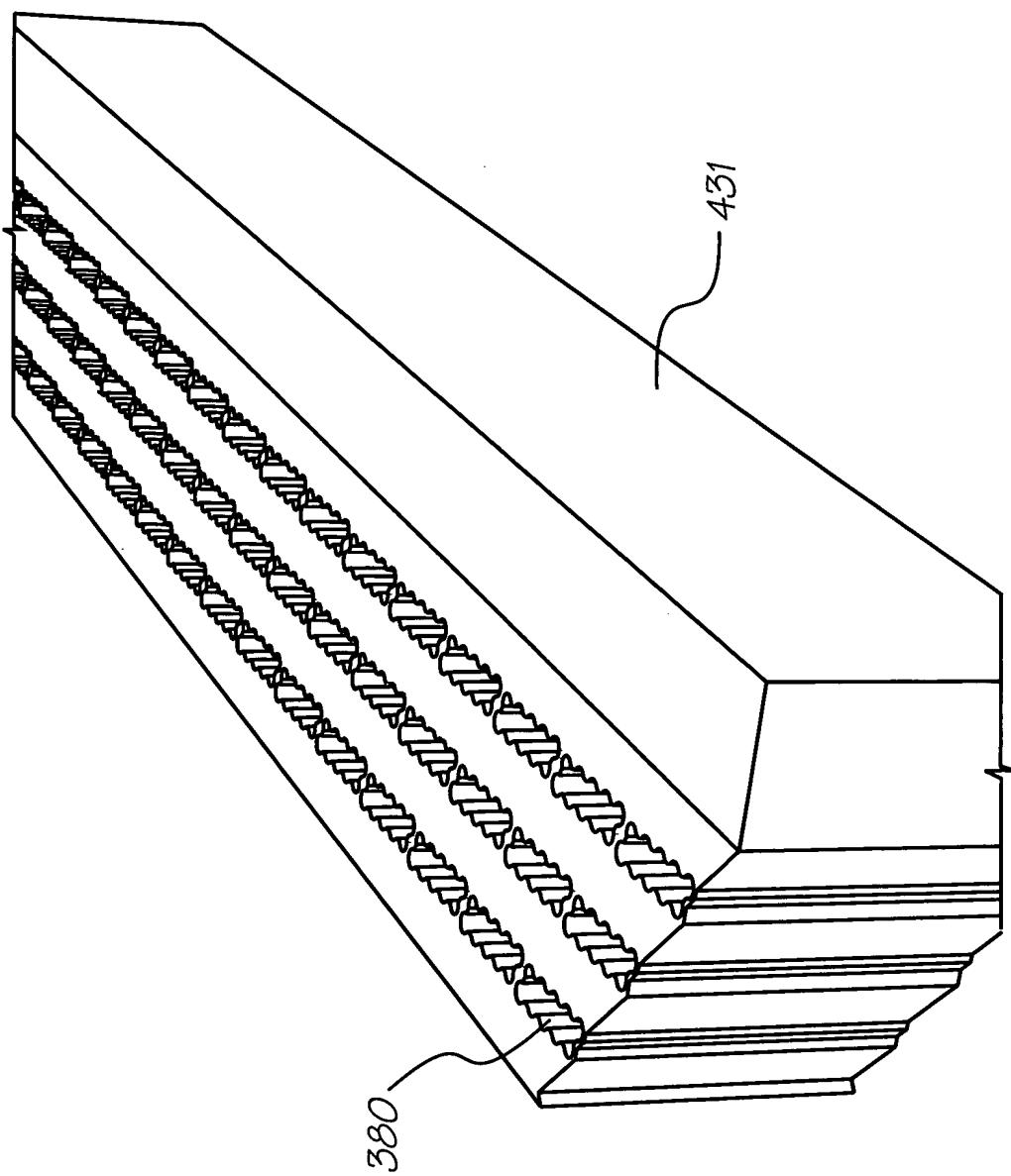


FIG. 88

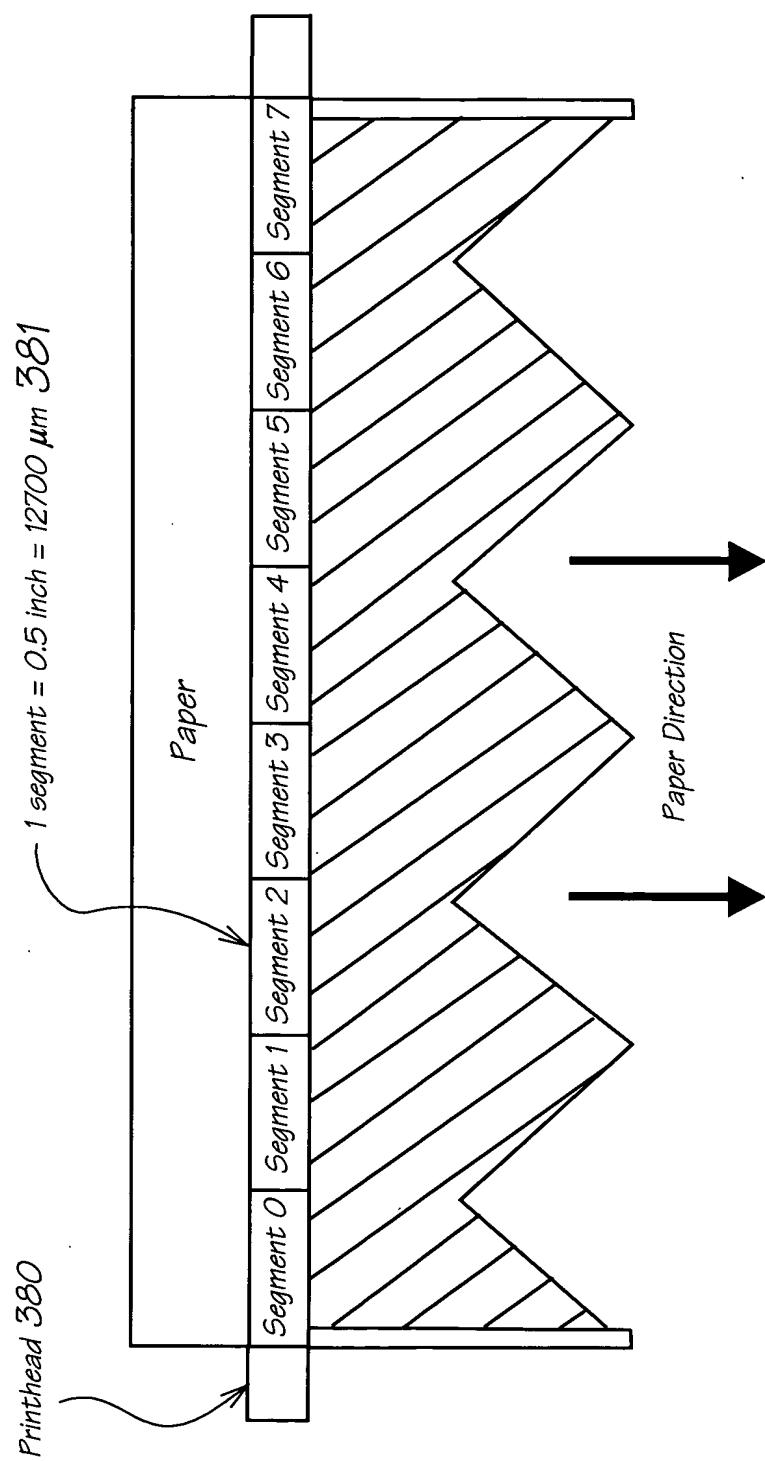
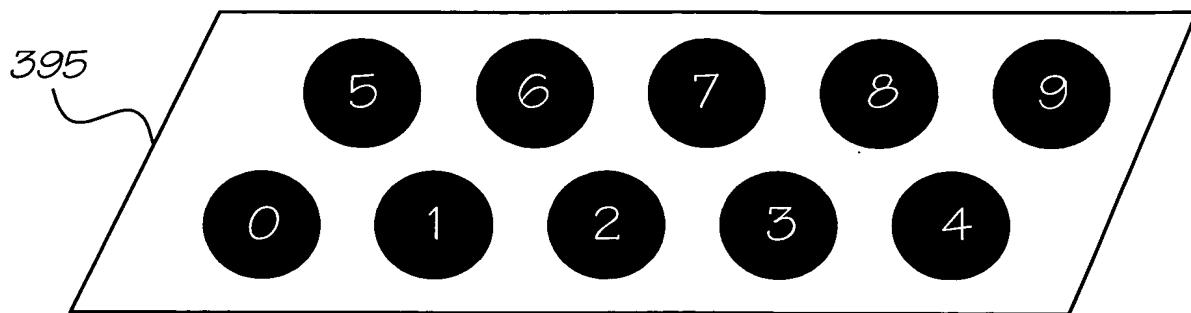


FIG. 89

65/76



A single pod, numbered by firing order

FIG. 90

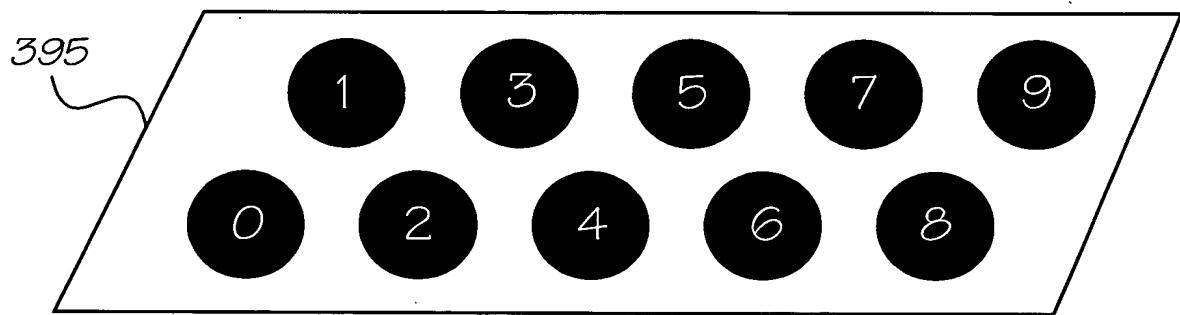


FIG. 91

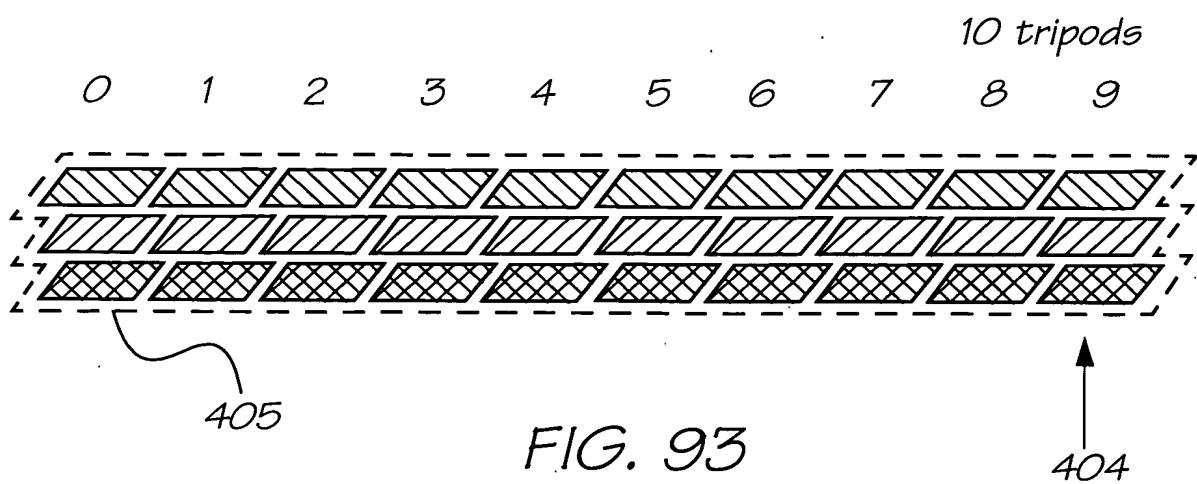


FIG. 93

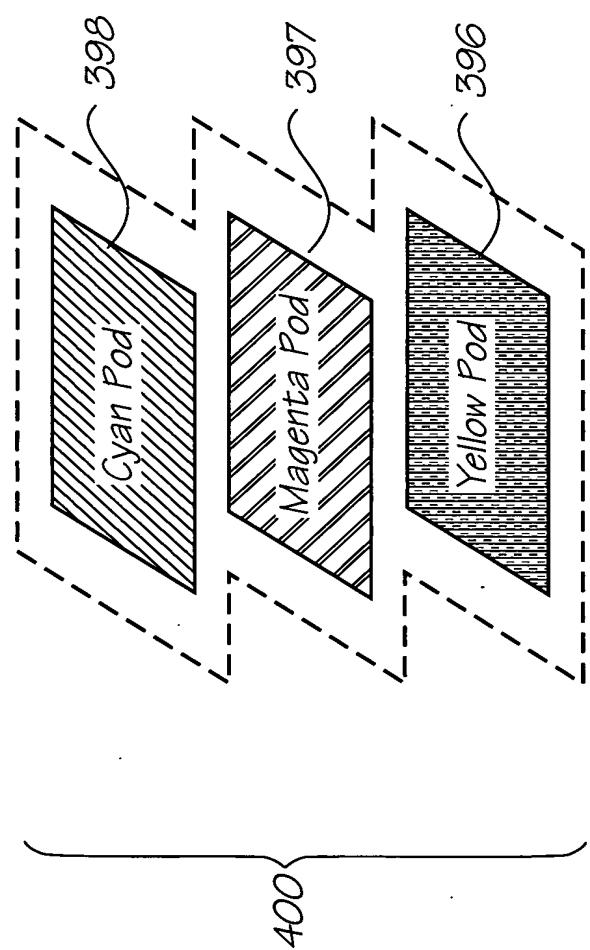


FIG. 92

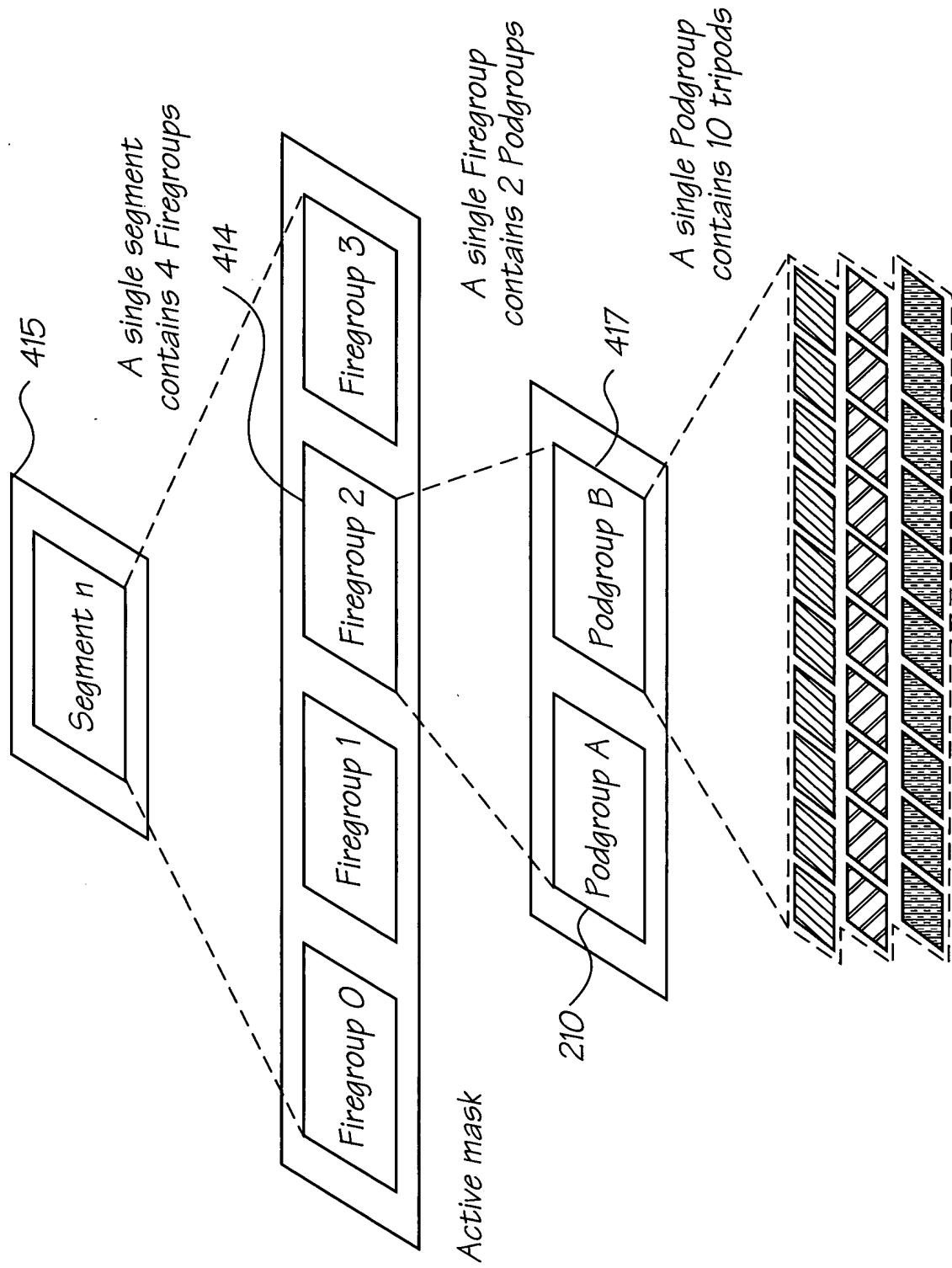


FIG. 94

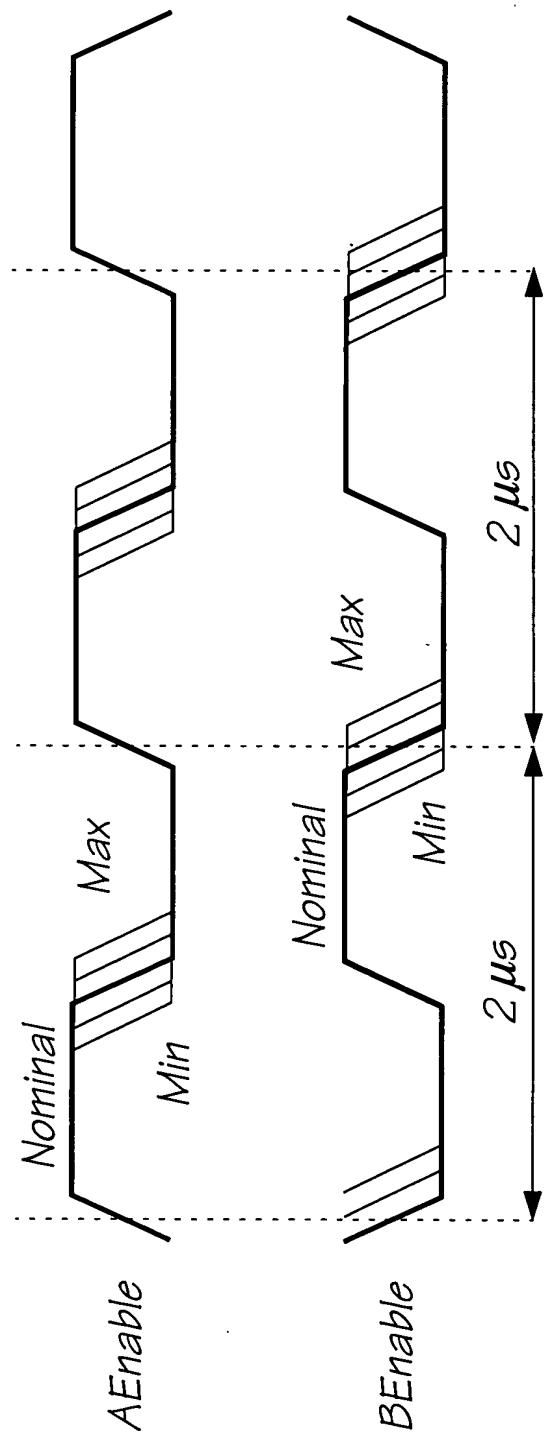


FIG. 95

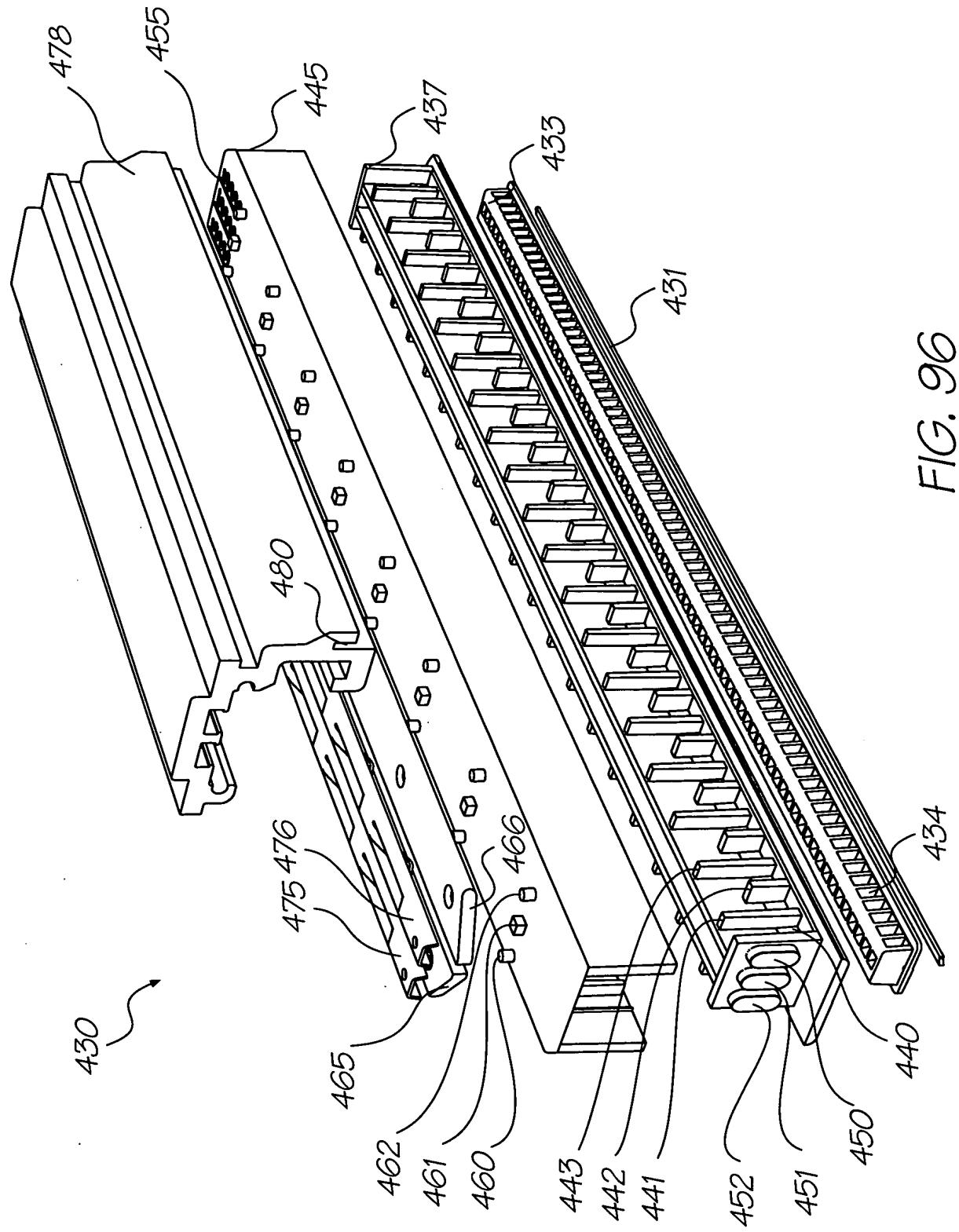


FIG. 96

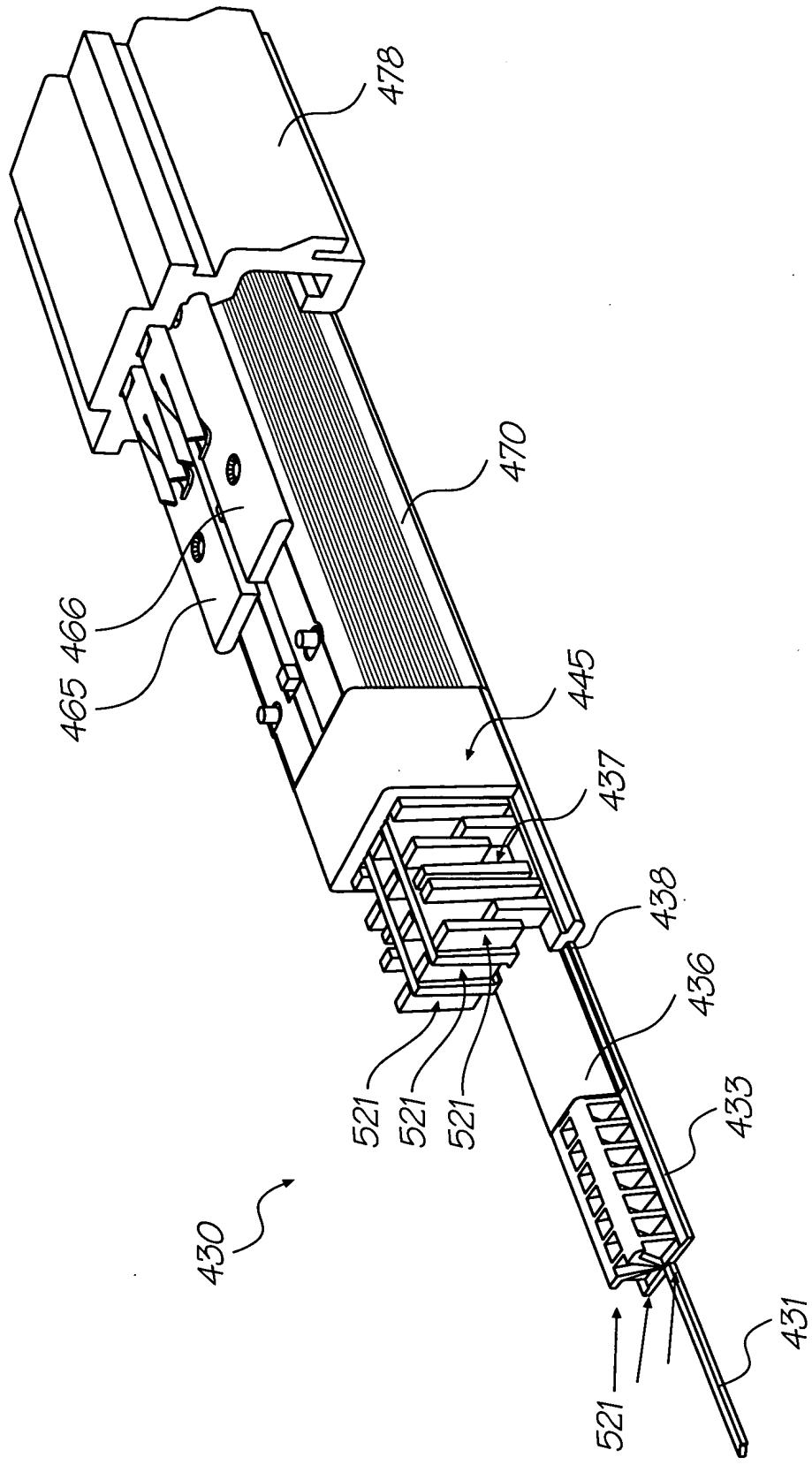


FIG. 97

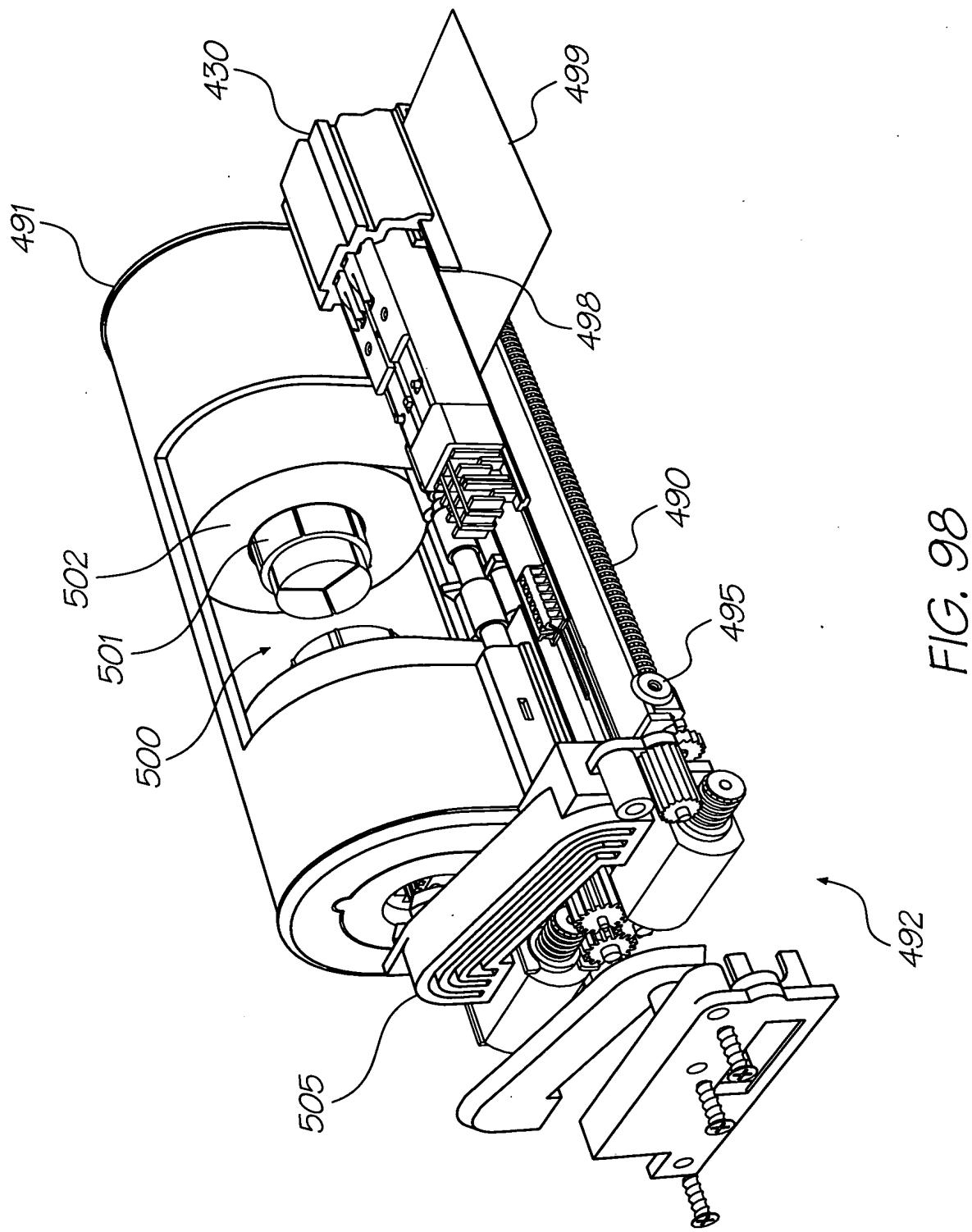


FIG. 98

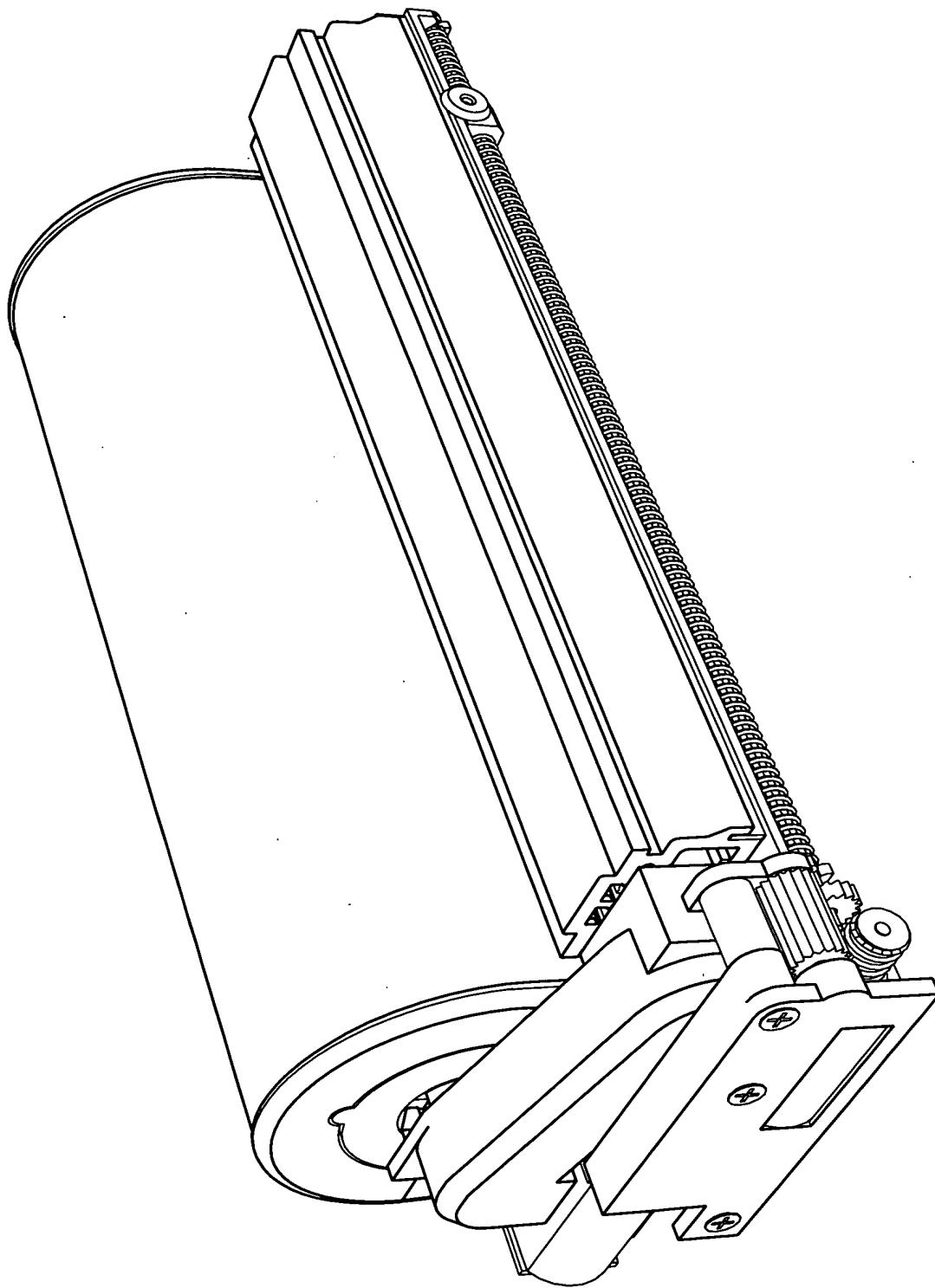


FIG. 99

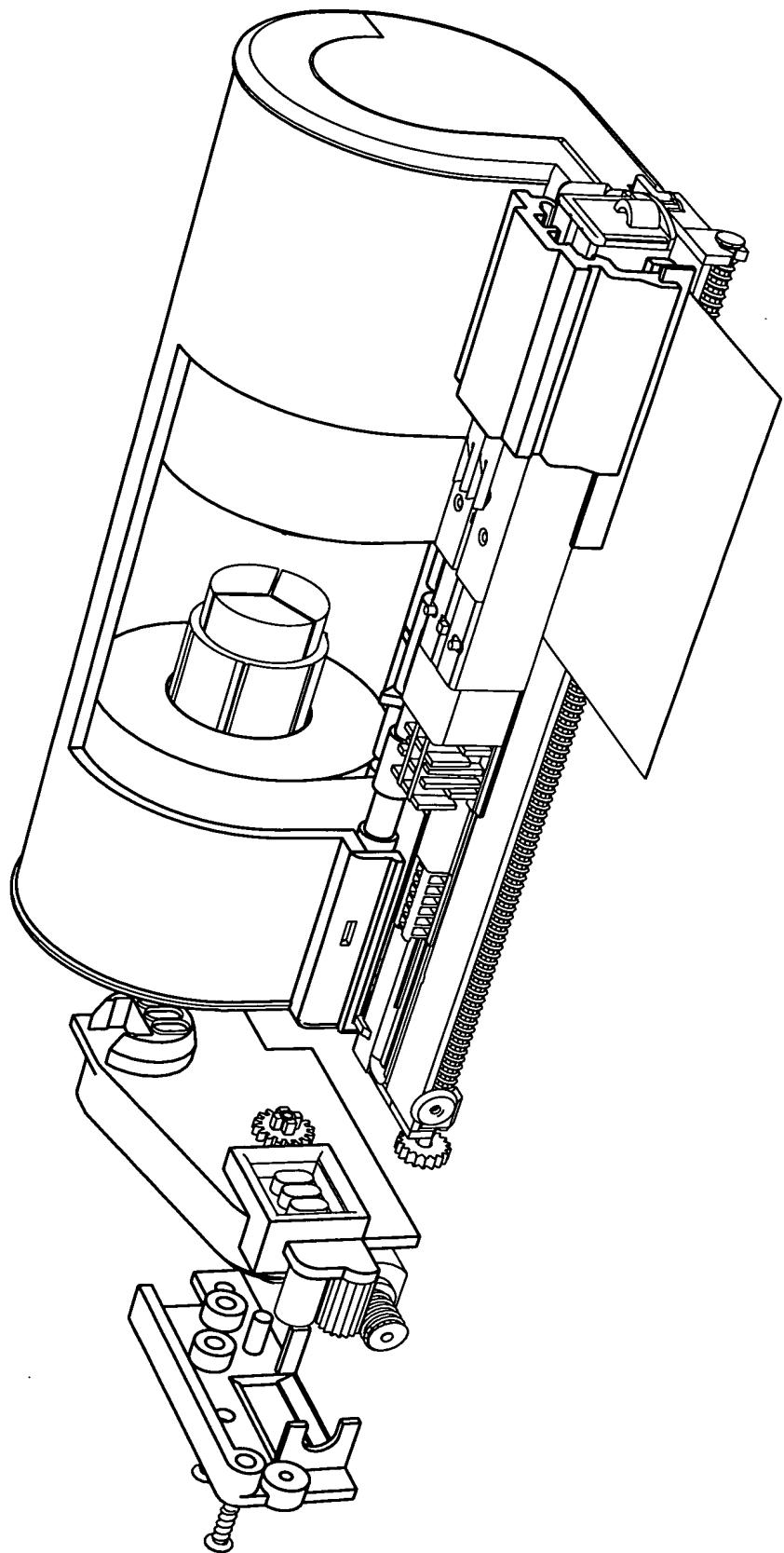


FIG. 100

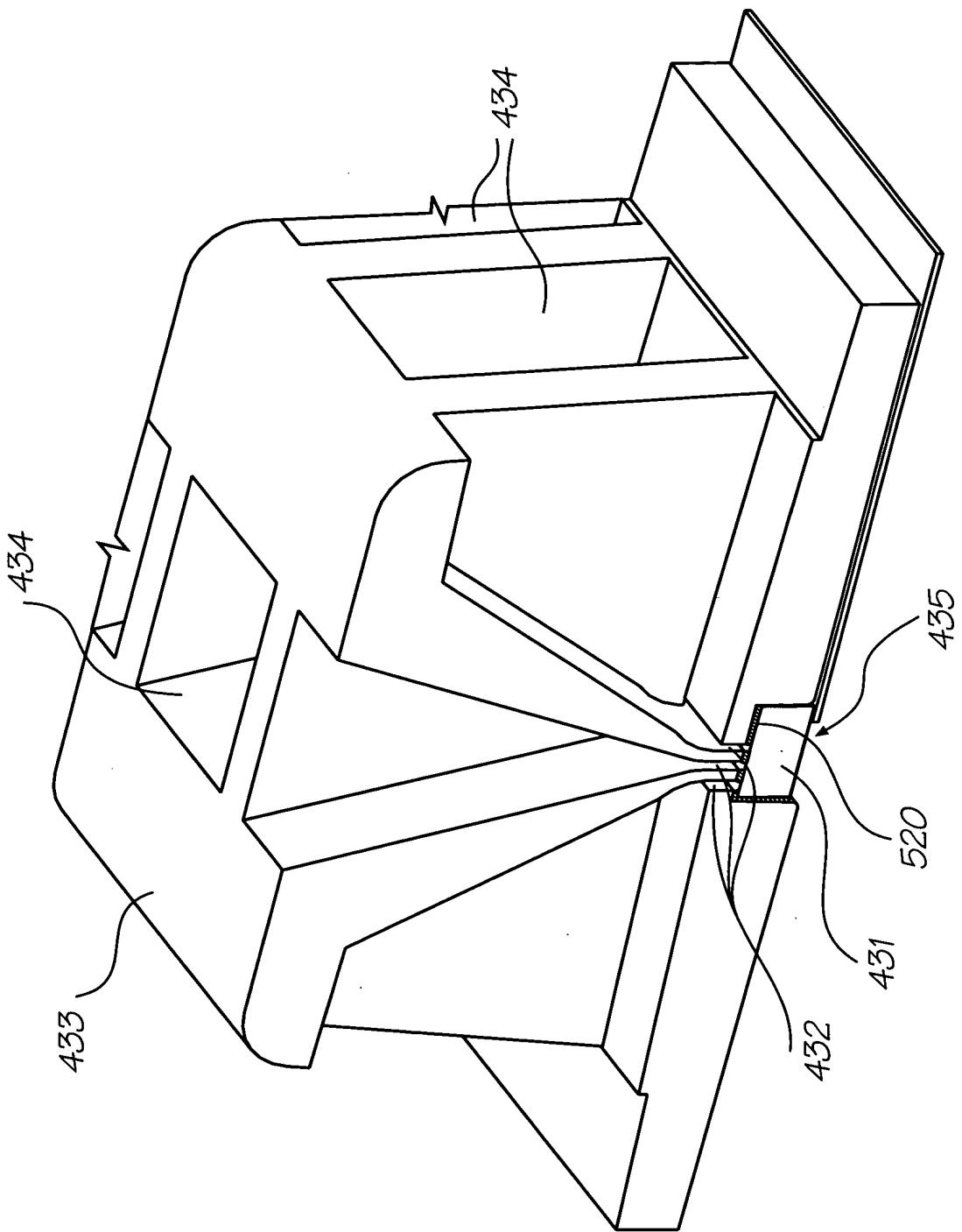


FIG. 101

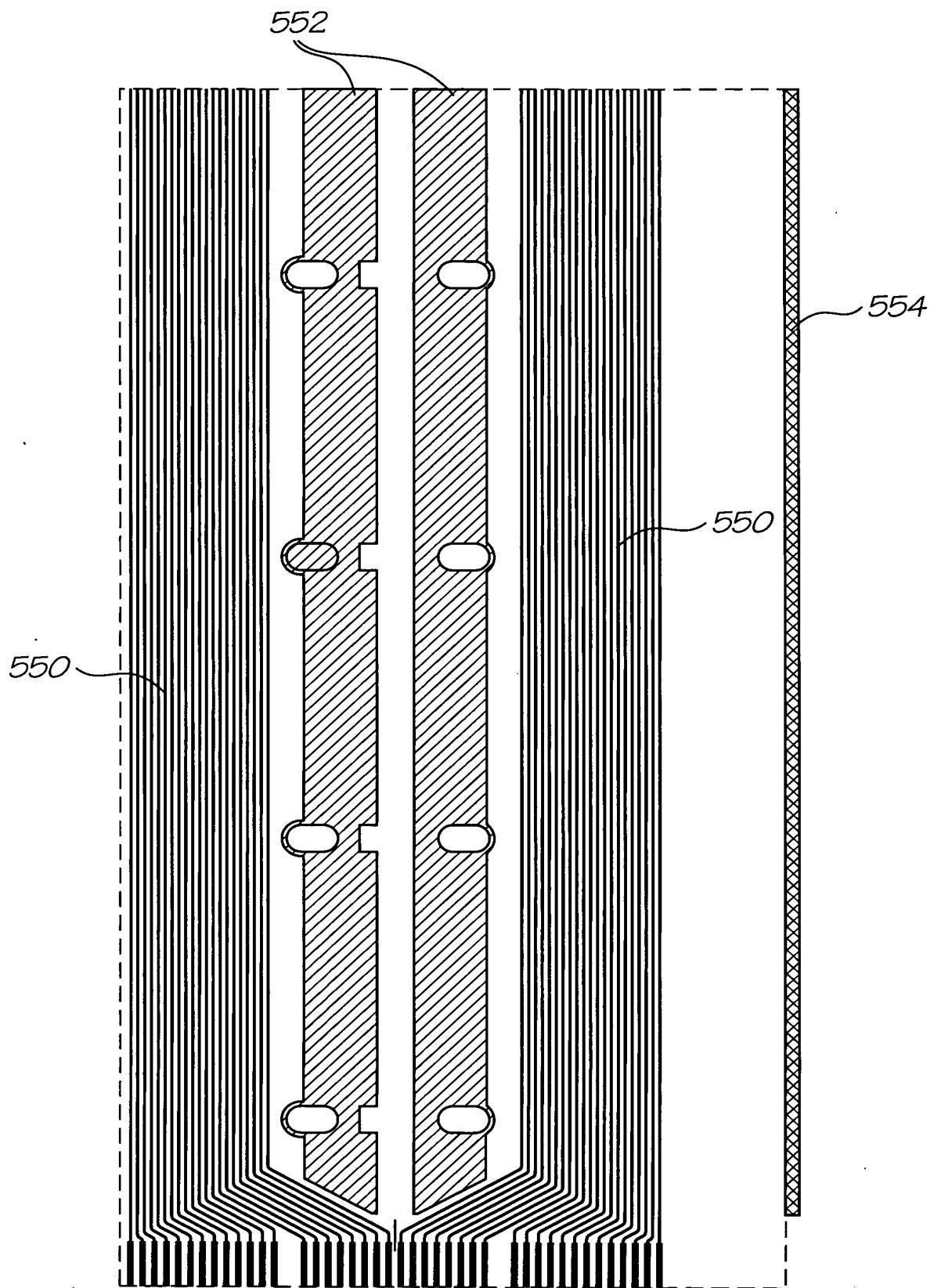


FIG. 102

76/76

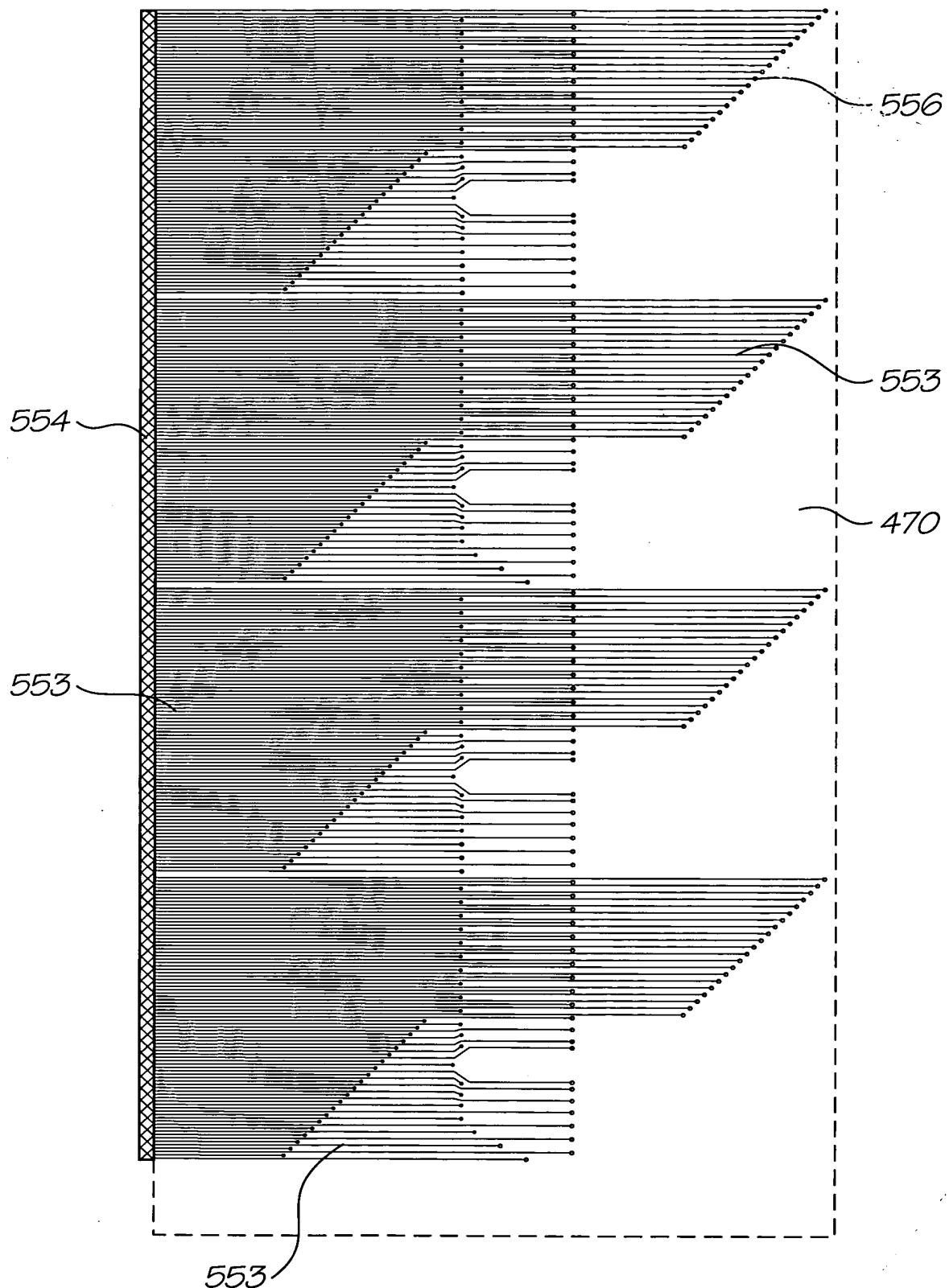


FIG. 103